Bellwether Magazine

Volume 1
Number 26 *Spring/Summer 1989*

Article 1

4-1-1989

Bellwether 26, Spring/Summer 1989

This paper is posted at ScholarlyCommons. https://repository.upenn.edu/bellwether/vol1/iss26/1
For more information, please contact repository@pobox.upenn.edu.

Newsmagazine of the School of Veterinary Medicine

Bellwether 26

University of Pennsylvania Spring/Summer 1989

UNIVERSITY OF PENNSYLVANIA
SEP - 7 1989
VETERINARY LIBRARY

Campaign Exceeds Goals

The School successfully completed its five-year Second Century Fund Campaign, exceeding its goal by more than $2 million.

A total of $43.6 million was raised, with the largest share — $20.9 million — coming from individual contributions. Contributions from foundations totaled more th n $18.7 million, while corporations contributed $3.9 million.

Veterinary School Dean Edwin J. Andrews said, "The successful completion of the Second Century Fund campaign gives us the security that as we grow physically and evolve intellectually many of the necessary resources to fuel our efforts will be in place."

Eight new ch irs were funded through the campaign, bringing the total of endowed ch irs at the school to 10, the highest at a veterinary school. The new chairs are:

- Mark Whittier and Lila Griswold Allam Professorship in Equine Surgery.
- Henry and Corrine R. Bower Professorship in Medicine.
- Elizabeth and William Whitney Clark Professorship.
- Marion Dilley and David George Jones Professorship.
- Grace Lansing Lambert Professorship in Cell Biology.
- Robert R. Marshak Term Professorship of Aquatic Animal Medicine and Pathology.
- Marie A. Moore Professorship in Humane Ethics and Animal Welfare.
- Marilyn M. Simpson Professorship in Equine Medicine.

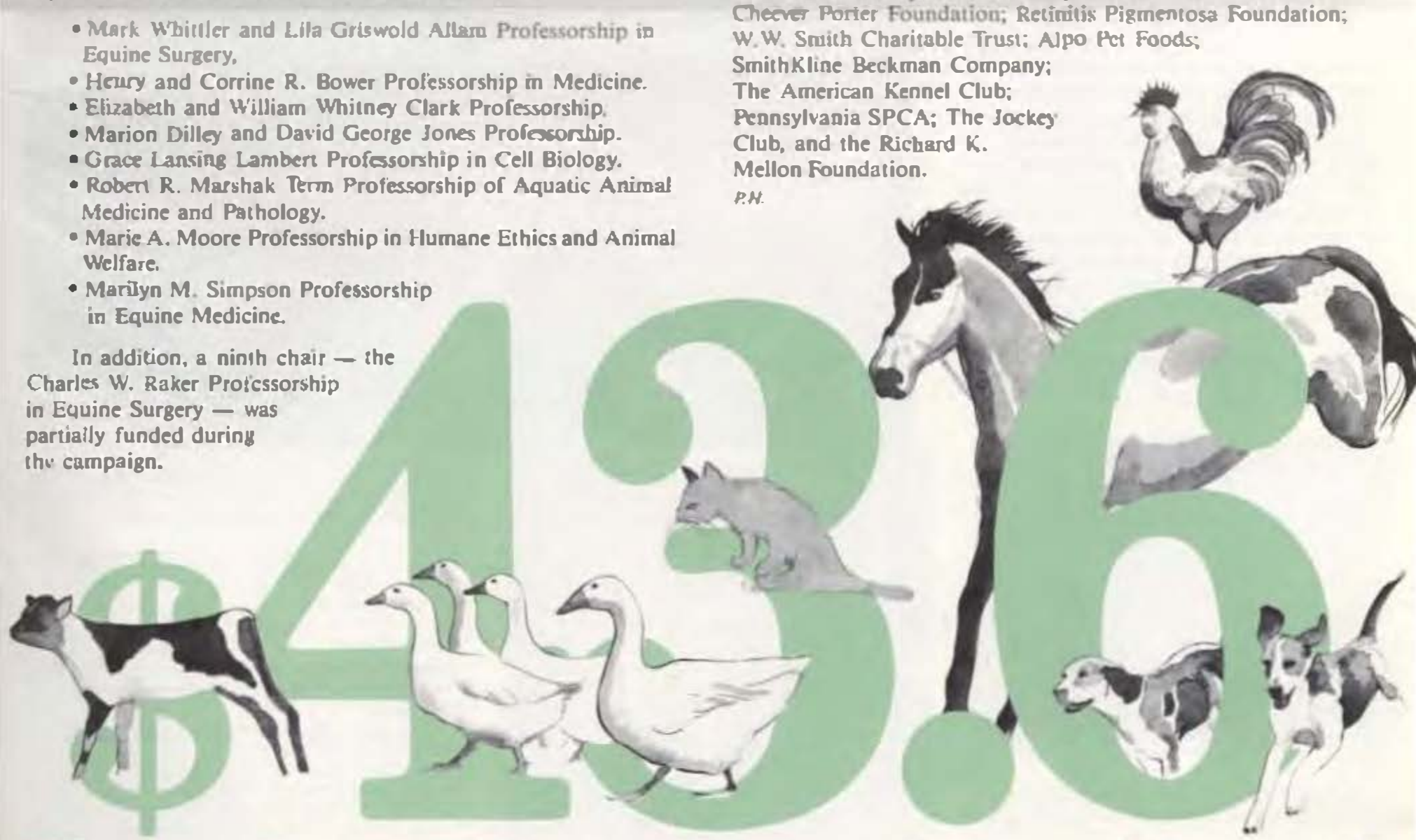
In addition, a ninth chair — the Charles W. Raker Professorship in Equine Surgery — was partially funded during the campaign.

The campaign enabled the School to purchase an additional 50 acres of farmland at New Bolton Center Campus, construct the Connelly Intensive Care Unit/Graham French Neonatal Section and plan for the construction of the Mark W. Allam Dairy Facility. Major renovations were completed for the departments of pathobiology, biochemistry, veterinary medical genetics and reproductive physiology.

Two scholarship funds — the M. Josephine Deubler Scholarship Fund and the Phyllis and Charles S. Wolf Scholarship Fund — were established.

Research programs at the School received significant support from a number of foundations, trusts and corporations. They are: the Lucille Markey Charitable Trust; Robert J. Kleberg and Helen C. Kleberg Foundation; Marilyn S. Simpson Charitable Trust; Pet Industry Joint Advisory Council; Kal Kan; Mrs. Cheever Porter Foundation; Retinitis Pigmentosa Foundation; W.W. Smith Charitable Trust; Alpo Pet Foods; SmithKline Beckman Company; The American Kennel Club; Pennsylvania SPCA; The Jockey Club, and the Richard K. Mellon Foundation.

P.H.



From the Dean

We have closed out the school year on several notes. First, by successfully completing our five-year Second Century Fund Capital Campaign at over $43,000,000; secondly, by completing a Strategic Plan that will provide the necessary direction for our growth as we approach the next century.

There is a sense of anticipation and excitement in the air as we begin the new academic year. The Strategic Planning exercise has given us a myriad of ambitious goals to be achieved in the areas of curriculum revision, student life, research focus, and faculty and staff development.

Within the next year we will be making meaningful commitments to further enhance certain of our clinical and service areas including our food animal programs, basic research effort and our equine sports medicine program.

I look forward to our continued working relationship with the General Assembly, our faculty, students, staff, friends and benefactors.

Edwin J. Andrews, V.M.D., Ph.D.

A ground breaking ceremony for the addition to the Center of Animal Health and Productivity was held at the New Bolton Center campus of the University of Pennsylvania School of Veterinary Medicine. Senator Noah Wenger (second from right) and Representative Joseph R. Pitts (second from left) assisted Dean Andrews and Dr. Romberg in the symbolic turning of the earth.

The addition will house offices, computer laboratories and seminar rooms, and will double the Center's current space. The Center for Animal Health and Productivity, established to provide service to farmers, training in production systems veterinary medicine, and research in animal agriculture, is funded by the Commonwealth of Pennsylvania.

1989 Legislator's Day

Pennsylvania legislators and their staff came to New Bolton Center on June 1 for the 1989 Legislator's Day at the School. They toured New Bolton Center's facilities and attended the ground breaking ceremony for the addition to the Center for Animal Health and Productivity.

Chair in Aquatic Animal Medicine

The University of Pennsylvania School of Veterinary Medicine has established "The Robert R. Marshak Term Professorship of Aquatic Animal Medicine and Pathology," the nation's first term chair in aquatic medicine to be established at a veterinary school.

The University is currently searching for a candidate to fill the chair. The holder of the chair will also become the director of the Laboratory for Marine Animal Health (LMAH), a diagnostic laboratory established in 1981 by Penn and the New York State College of Veterinary Medicine at Cornell University. It is a part of the world-renowned Marine Biological Laboratory (MBL) in Woods Hole, Mass.

Donald A. Abt, who is currently director of the LMAH and is associate dean and professor of epidemiology and biostatistics at Penn's veterinary school, said the laboratory has described more than 40 previously unknown diseases affecting marine life since its inception eight years ago. "Our research focuses on the lowest of the invertebrates, such as sea worms and sand dollars, on up to marine mammals," Abt said. "Although founded primarily to study diseases of marine animals used in research, the lab has increasingly been called upon to participate in investigations of environmental and ecological problems."

The MBL is also the site of the annual AQUAVET program, an intensive introductory course in aquatic medicine in which the LMAH also plays a vital role. This year, 24 students from around the world participated, Abt said. The course, beginning in May, covered a broad sampling of topics, ranging from ecology and anatomy of marine invertebrates to marine mammal health.

P. H.

19th Annual Canine Symposium

The 19th Annual Symposium *Your Veterinarian and Your Dog* was held on January 28, 1989 at the Veterinary Hospital of the University of Pennsylvania. The event was supported by a contribution from The IAMS Company.

Dr. Darryl N. Biery, professor of radiology and chairman, Department of Clinical Studies, Philadelphia, welcomed a capacity crowd. Following are the summaries of the presentations.

Hip Dysplasia

Ever since canine hip dysplasia was first diagnosed 50 years ago dog breeders have worked to eliminate this disorder from their bloodlines. Radiographic screening of breeding stock through the Orthopedic Foundation for Animals has been in place for many years. Yet the number of afflicted animals has not significantly decreased and hip dysplasia remains the most common orthopedic problem in canines. Dr. Gail K. Smith, associate professor of orthopedic surgery, discussed the disease and a more precise method of radiographically screening dogs.

Canine hip dysplasia can be defined as "hip joint laxity resulting in degenerative joint disease." Its cause is not clear, but it is known to be due in part to hereditary factors. Environmental factors, such as excessive exercise at an early age or unlimited access to food, also play a role in the expression of the disease, as does the growth rate. Rapidly growing dogs are more prone to manifest the disease than those which mature more slowly. Almost all breeds of dogs are affected, though it is seen more commonly in large and giant breeds where more than 50% of the population may be affected.

In an afflicted animal the hip joints are lax, setting the stage for tissue inflammation and degenerative joint disease. The manifestation of the disease varies, in some cases it may be evident only radiographically with the animal exhibiting no signs of discomfort while in other cases dogs may show exercise intolerance or signs of pain. Dogs severely afflicted with the disease may have difficulty in rising and may be reluctant to engage in the normal activities of puppyhood. Treatment can range from daily administration of analgesics to surgical removal of the hip joint. Such treatment does not cure the disease, but it will significantly reduce the animal's discomfort.

"The hip joint is the least constrained of all the joints in the body, having the largest range of motion," Dr. Smith explained. "A ball and socket joint, it is held in place by the round ligament, the joint capsule, muscle forces and a newly discovered 'hydrostatic constraint.' The hydrostatic constraint consists of the synovial fluid acting together with the joint capsule to create a vacuum-like effect preventing coxofemoral subluxation. From an awareness of this new stability factor we designed a clinical stress-radiographic method to measure (quantitate) hip joint laxity. This method differs significantly from the standard hip-extended method in which radiographs are used to detect subluxation and signs of degenerative joint disease."

By the standard method severe cases may become evident radiographically at an early age (6 mos.), but more than 70% of dogs with hip dysplasia at this age will be diagnostically missed. It is thought if signs of the disease are not evident by age two the dog is free of hip dysplasia. Selective breeding based on this radiographic screening program has not greatly reduced the number of dysplastic animals.

For the standard radiographic screening method the dog is positioned on its back, the legs are in parallel position and extended horizontally. This causes a rotation, in effect tightening the joint somewhat. The standard technique, Dr. Smith believes, can lead to false readings as a joint may appear tighter than it is.

The method developed by Drs. Gail Smith and Darryl Biery here at Penn requires two views. For both views the dog is positioned on its back. For the first film the legs are kept at a neutral flexion-extension angle, simulating the natural standing position. No tightening of the joint occurs. This view shows the natural fit of the hips. For the second view the legs are in the same position and stress is applied to the joint, to determine the maximum lateral displacement of the femoral head from the acetabulum. The technician measures distance between ball and socket in the two views and calculates the laxity. The researchers have developed a laxity index scale which ranges from 0 to 1. Hips approaching 0 are very tight and hips approaching 1 are very loose. Dr. Smith stated that all dogs have finite hip joint laxity. Performance breeds, such as racing greyhounds, have mean hip joint laxities significantly tighter than breeds known to suffer from hip dysplasia.

During the study, litters of large breed dogs were followed longitudinally from the age of four months. It was found that those developing degenerative joint disease earliest were the animals which showed greatest laxity at an early age and that those dogs having loose hips are subject to greater variation in laxity with age. The trend is for the hip joint, like other joints in the body, to tighten somewhat with maturation. This tightening, however, is of small magnitude and rarely shifts the designation of a hip joint from abnormal laxity to normal laxity. It was also found that those dogs with tight hips at four months retained tight hips with growth unless trauma intervened. Dogs with loose hips as determined by the new method have a significantly higher incidence of degenerative joint disease than those with tight hips. In fact, a major discovery was the existence of a distinct laxity index threshold, below which the probability that a dog will develop hip dysplasia is 0. In support of this finding is the observation that the hips of all borzois and racing greyhounds, breeds known to be free of CHD, fall below this threshold.

A breeding pair of German shepherds with low laxity indexes was mated. The resulting litter showed a marked decrease in hip joint laxity. Six of the pups fell below the threshold and the other three had a lower laxity index than the overall German shepherd population evaluated so far here at the School.

Dr. Smith feels the incidence of canine hip dysplasia can be significantly reduced if only those dogs are used for breeding which exhibit a tight hip fit at an early age. The breedings of German shepherds done as part of the study suggest that "like begets like" and that one can shift the laxity index toward the lower end of the scale. It will take more than one generation of dogs, but preliminary findings indicate that the method to diagnose susceptibility to CHD developed at Penn, if utilized as a criterion in selective breeding, holds the promise of dramatically reducing the incidence of canine hip dysplasia. Dr. Smith and his colleagues are now studying litters as young as eight weeks to determine whether a laxity index at this age can be reliably measured and whether this index can predict the puppies' susceptibility to hip dysplasia.

While the exact cause of hip dysplasia is not known, it has been shown that hereditability plays a role. Further studies are needed to determine which components of the joint play a major role in the development of the disease. For example, the animals with abnormal laxity have a greater volume of synovial fluid. Studies are needed to determine the causes of this.

Dr. Smith acknowledged the cooperation of a number of breeders of German shepherd dogs and a borzoi breeder who have cooperated throughout this study and have brought their young litters in for radiographs. These breeders (and the owners of the dogs) then took further time to bring back the dogs for radiographs so they could be evaluated longitudinally. Dr. Smith and his colleagues are now gathering the same data for other breeds. The project has been supported by the Biomedical Research Support Gram Program, Division of Research Resources, National Institutes of Health; the University of Pennsylvania Research Fund; the Morris Animal Foundation; and the Seeing Eye, Inc.

Photo C: Standard extended view of the hips of a six-months old German shepherd, showing hardly any laxity.

Photo D: Distracted view of the hips of the same dog, showing about 30 percent more laxity than evident in the standard extended view.

Understanding What Happens When Your Dogs are Anesthetized

Anesthesia, a very necessary process in veterinary medicine, often worries owners. Dr. Alan Klide, associate professor of veterinary anesthesia, discussed anesthesia to help owners understand it.

Many different drugs are utilized such as narcotics, tranquillizers, barbiturates and inhalants. In each case the drugs and dose chosen are tailored to the particular patient and the procedure performed.

During anesthesia a patient is unaware, does not feel pain, and has minimal responses to a pain producing event. This is accomplished by giving certain drugs, either by injection or inhalation. The drugs which produce this necessary and important state, also have effects not only on the brain but also on many different parts of the body. In general these effects interfere with normal function but the degree of this interference is usually small, and the duration usually relatively short, so that the patient can tolerate these effects. The drugs can affect many systems but the ones that are most critical are the respiratory system (breathing) and the cardiovascular system (heart and blood vessels-circulation). If breathing is depressed the patient can be ventilated mechanically until the effect of the drug wears off. If the heart is depressed it can be stimulated, up to a certain point. If the depression cannot be overcome, the patient dies. This is not meant to scare but to illustrate what happens under anesthesia and what the risks are.

It is commonly believed by many dog breeders that their breed is particularly sensitive to 'anesthesia' or the effects of certain drugs. There is very little scientific information to show that there is a difference between breeds in response to drugs, however there is some. Sighthounds and greyhounds in particular have been studied, and they do respond to a different degree to a certain type of anesthetic, called ultra short lasting barbiturates. They react differently for at least two reasons. The first is that in general they are very lean, i.e. have very low body fat. One of the ways that the amount of these barbiturates in the blood goes down is because the drug goes into the fat. If there isn't much fat the blood level falls more slowly. The second is that the liver removes many drugs including barbiturates and greyhounds' livers do this more slowly than most other breeds.

There is no other information to show that anesthesia is any more or less dangerous in any other breeds. Part of the reason for the breeders' concern about anesthesia may be that they, or others, remember problems and deaths that occurred many years ago, and they keep thinking about that. The anesthetics in use today are much safer and there is a greater variety to choose from. However, it must be kept in mind that critically ill patients do present a risk.

There is no question that individuals respond differently to drugs. This range of responses is most obvious with anesthetic drugs. What are we likely to see if we give a certain dose of an anesthetic, based on the weight of the dog, to 10 dogs and observe the depth of anesthesia which results? If we have chosen what normally is an appropriate dose to produce a moderate depth of anesthesia, we will see that perhaps six of these 10 dogs will be at a moderate depth of anesthesia. Of the remaining dogs, two will be at a deeper depth of anesthesia and two will be at a lighter depth of anesthesia. Of the two that are at a deeper depth of anesthesia one might die if it is not supported by mechanical ventilation or drugs for its cardiovascular system. Of the two that are at lighter depth of anesthesia one might not even be anesthetized or lie down.

There are differences in breeds in relation to their attitudes on life, pain, and adversity. Some breeds will wake up from anesthesia very differently than others. For example, Siberian huskies and Irish setters are likely to wake up with much more excitement than other breeds. The likelihood of excitement during recovery also depends a great deal on the site of surgery — a dog that had surgery around its head and neck is much more likely to wake up more excited than a dog that had surgery in its abdomen.

Many drugs are given when a dog is anesthetized. They are used for different effects. The first drugs the dog is likely to receive before it is anesthetized are the pre-anesthetic drugs. One type of drug is used to decrease secretions and to keep the heart from going too slowly during the beginning of anesthesia. Another type of drug will be given to sedate the dog. This drug may be a narcotic, a tranquillizer, or a sedative. Then anesthesia is most commonly induced with an ultra short lasting barbiturate given intravenously. There are other injected drugs which are sometimes used to induce anesthesia. Anesthesia may also be induced by having the dogs breath an inhalation anesthetic. After anesthesia is induced, a tube is usually placed through the mouth into the trachea so that the dog can breath without any obstruction to the flow of air into and out of the lungs, and to prevent aspiration into the lungs of material regurgitated up from the esophagus or stomach. The endotracheal tube is then connected to an anesthesia machine from which the dog breathes an inhalation anesthetic. The most common ones are halothane, isoflurane and methoxyflurane. They each have different properties that make them useful or dangerous under different circumstances. After anesthesia the endotracheal tube is removed as the dog wakes up. The dog may receive medication to prevent pain at this time.

There are many drugs in each category. They each have different properties that make them useful or dangerous under different circumstances. There is, almost never, only one way to do anything, and this is true for anesthesia too. In any particular circumstance different drugs in each category may be appropriate. The other side is also true, i.e. there are circumstances where certain drugs or techniques should definitely not be used.

Veterinarians are taught various aspects of anesthesia throughout their time in veterinary school by faculty and technicians who are specialists in anesthesia. The subject requires a thorough understanding of how the body functions and the effects of drugs and disease on the body. Anesthesia then builds on this base of information to be able to determine the best drugs and techniques to use in different circumstances. This is taught in the classroom and also in the operating room where students administer anesthesia under the supervision of faculty anesthesiologists and veterinary anesthesia technicians.

Computers are beginning to be used in teaching and clinical veterinary medicine. We are using them to help teach anesthesia. There are computer programs which are simulations of the administration of anesthesia to patients, and the students can interact with the computer to choose drugs and concentrations and then see what effect their choice makes on the patient. This allows gaining experience without actually having to use an animal. The computers can also be used for calculations in the operating room and as a data bank instantly available on many subjects of critical importance.

In veterinary practice, anesthesia may be administered by different people. The veterinarian may administer the anesthesia, i.e. the same person will be doing the surgery and monitoring the animal under anesthesia. There are now trained animal health technicians that are employed by veterinarians and they may be the person administering the anesthetic. Rarely in a veterinary practice does one veterinarian do the procedure, surgical or otherwise, and another veterinarian administer the anesthetic, as in human anesthesia, except in veterinary schools and in a few practices.

Anesthesia is a very important, common, but dangerous, part of veterinary medicine. It can be done in a manner which makes it as safe as possible or it can be done in a manner which is less safe.

Emergency Care and Treatment for the Canine

Emergency medical situations for the pet can occur at home, while traveling, or while engaged in a recreational pursuit. Often the initial assistance given to the animal can make a difference between life and death. Dr. Rebecca Kirby, assistant professor of medicine and director of the Emergency Service at the Veterinary Hospital of the University of Pennsylvania, provided an overview of how owners can recognize a potentially life-threatening problem in a pet, how they can detect abnormal physical parameters and how an animal can be stabilized prior to transporting it to an emergency veterinary facility. Owners should also be familiar with their dog's normal vital signs and how to detect signals of trouble. In an emergency, information about body temperature, pulse rate, and color of the mucous membrane provide vital information to the veterinarian.

The normal rectal temperature for the dog is within the range of 101-103 degrees Fahrenheit. Body temperature less than 100.5 F is suggestive of either cold exposure or poor circulation and shock. An elevation in rectal temperature above 103 F in a calm animal is suggestive of either heat exposure, prolonged muscle activity or inflammation within the body. Extremes in body temperature, in either direction, warrant immediate evaluation by a veterinarian. One should not apply surface heat if the temperature is low or submerge the animal in ice water if the temperature is high. The veterinarian should be consulted first.

It is important to evaluate the pulse rate and strength. In the dog, the easiest pulse to locate is the femoral pulse. The femoral artery lies on the inside of the rear leg, just below the hip joint. There is a poorly muscled triangular area within which the artery lies. In the dog, the normal rate is between 60 and 150 beats per minute. The heart rate will vary with the breed, size and/or activity of the dog. Heart rates consistently below 60 or above 180 beats per minute in any breed warrant evaluation by a veterinarian.

The strength and intensity of the pulse is also noted. Pulses that are rapid and "bounding" are compatible with early stages of shock, dehydration, excitement, or exercise. Pulses that are weak and "thready" can be suggestive of a more advanced stage of shock or severe anemia. These findings should be reported to the veterinarian.

The color of the mucous membranes (gums) can provide a reflection of how well the body is being given oxygen. The gums should be pink in color in a non-pigmented area. Bluish coloration reflects cyanosis and is suggestive of poor oxygenation of the blood. Brown coloration is suggestive of an abnor-

mality of the oxygen carrying system within the red blood cells, often due to drug toxicities such as acetaminophen or nitiates. Gray'ish gum color is compatible with poor circulation and shock. White gum color is seen with shock or severe anemia. When the gums are "brick red," toxins, fever and the very early stages of shock are possible causes.

Evaluating the body's ability to circulate blood to the tissues can be done by testing the capillary refill time (CRT). The gum is exposed and a non-pigmented area found. The gum is compressed with the finger and the finger immediately withdrawn. Where the compression took place, the gum will be white, due to the physical movement of the red blood cells away from the area by compression with the finger. In the normal animal, the length of time it takes for the gum to return to its previous color should be less than 2 seconds (called the CRT). CRT greater than 3 seconds is suggestive of poor circulation and shock. Veterinary assistance should be sought immediately.

Normal animals should be bright, alert and responsive to familiar commands. Changes in the level of consciousness can manifest as seizure activity, hyperexcitability, mental dullness, loss of consciousness but arousable with pinching of the toes (stupor), or loss of consciousness and not arousable (coma). Any of these changes should be reported to a veterinarian immediately.

The owner should observe the size and light response of the animal's pupils if the level of consciousness is abnormal. Report if the pupils are normal, small or greatly enlarged. A light is directed into the eye and it is noted whether or not the pupil constricts in response to the light. Any abnormal eye positions or movement should be noted and reported to the doctor. These changes can help localize where the problem might be occurring.

Dehydration can lead to poor circulation and poor organ function. Early detection is important. The owner can check the animal's gums and see if they are dry when they should be moist. The skin located over the shoulder region can be elevated from the body and allowed to fall back into place. This should occur easily and quickly. The eyes should be moist and shiny. When found to be dull and sunken into the skull, dehydration is likely. Veterinary help should be sought as soon as possible.

An animal's breathing pattern should be smooth and easy. Expiration is generally passive and the normal rate of respiration is between 12-20 breaths per minute. Exercise, excitement, or heat exposure may alter the rate in a normal animal.

When no breathing is observed and no passage of air is felt coming from the nostrils, immediate mouth to nose breathing support by the owner is required and veterinary assistance sought immediately. Less severe abnormalities which require medical evaluation include labored breathing efforts; rapid, shallow breathing; abdominal breathing; or loud, noisy breathing.

Several life-threatening problems can first be manifested by abdominal enlargement. Normally, the animal's abdomen should be considerably smaller than the diameter of the posterior portion of the rib cage. Should the diameter enlarge acutely, veterinary assistance should be sought immediately.

When an animal is observed to have difficulties urinating or has not been observed to urinate for a significant period of time, it is useful to feel the size of the urinary bladder. The bladder is located just anterior to the front part of the pelvis, deep within the abdomen. One hand is sufficient in small animals (under 15 pounds), or both hands are used in larger animals. A small amount of compression of the abdomen is required. The urinary bladder will feel like a water-filled small balloon when it is full. Care must be taken not to put pressure on the bladder. Should the bladder be very large and painful, or the animal be observed unable to pass urine, immediate veterinary assistance is required.

Following are emergency procedures which the owner can perform to stabilize the animal. By far the most common emergency is an animal hit by a car. The first consideration has to be a safe spot for the person attempting to help. Once the attention is turned to the animal, three areas have to be addressed: airway, breathing, circulation.

Mouth, nose and throat should be examined for obstructions and any debris such as dirt, mucous, or foreign bodies should be removed. If an object is totally obstructing the airway and is lodged in the throat and cannot be removed by hand, then a modified Heimlich maneuver can be used to dislodge the object. This is done by applying four or five firm compressions to the thorax (where abdomen joins the chest) just as one would do in a human. The maneuver should not be tried for more than thirty seconds. If it fails to clear the airway, then a small hole must be made into the trachea (windpipe) and the hole held open (a straw or an empty barrel of an ink pen can be used when available) to allow passage of air to the lungs.

Once the airway has been cleared and if it is determined that the animal is not breathing, then mouth to nose resuscitation can be initiated. The mouth of the dog has to be tightly shut, and the owner places his mouth tightly over the dog's nose. If a hole had to be made into the trachea, air has to be blown into it through whatever was used keep the hole open.

After four full breaths one should evaluate the animal for heart beat and pulse. If these are not present, then chest compression has to begin. If the animal weighs 15 pounds or less, the chest is encompassed by the owner's hands, with the palm of one hand over the spine, and the palm of the other hand over the sternum, with fingers extending over the rib cage. Chest compressions are done directly over the heart. Larger animals are placed on their side with the spine toward the person. The palms of the hands are used to compress the rib cage at the widest level of the chest. Using either method, the rib cage is compressed only 1/4 to 1/3 of the normal diameter. The rhythm of the mouth to nose breathing and chest compressions should be: initially four full breaths and check for heart beat...If none, compress chest five times and then breath for the animal, compress chest five times, breath...

Pulses and heart beat should be evaluated every two minutes. If no heart beat is detectable within 20 minutes, the animal should be presumed dead. Every effort should be made to transport the animal to an emergency facility during the resuscitation procedure.

Animals that have been traumatized or are acutely ill may be in pain. Otherwise lovable dogs may snap or bite. Caution must be observed, and when indicated, a muzzle may be needed. If roll gauze is not available a necktie or panty hose can serve to fashion a muzzle. If the animal has vomiting as a major problem, a muzzle which forces the mouth tightly shut should not be used.

When trauma is the cause of the injury, animals are frightened. They can be calmed by placing a light cloth over their head to cover their eyes, removing sight stimulus.

Bleeding can become a life-threatening problem and should be controlled as soon as possible. Internal hemorrhage may not be evident. When blood is seen around the animal, the owner must make a rapid search for the origin. Once found, bleeding is controlled by: applying gentle pressure over the site of the hemorrhage. If bleeding occurs from a limb, this should be elevated. Bleeding may stop.

A compression bandage can be placed over the bleeding site, with mild pressure applied not only directed over the site, but also for a short distance above and below the site. When the blood soaks through the bandage, do not remove the bandage. Instead, place additional bandage material over the bandage in place.

Only very rarely are tourniquets needed. If the bleeding can not be controlled by any other means, a tourniquet can be placed above the bleeding site. It must be loosened at least every 10 minutes to allow blood flow to the distal portion of the limb. Obviously, tourniquets should not be placed on the neck, chest or abdomen of the animal.

Any open wounds or exposed tissues should be covered with a warm, wet cloth. Drying of tissues delays healing and predisposes the tissues to infection.

If any of the limbs appear to have a severe fracture and are "dangling" (in danger of having bone fragments penetrate the skin), they should be immobilized. When the fracture is below the elbow or the knee, a rolled up newspaper or magazine can be used as the splint board and roll gauze, a neck tie or panty hose used to attached the limb to the make-shift splint. Attempts should not be made to stabilize by splint fractures located above the elbow or knee.

Care must be taken when moving an injured animal, avoiding jerking movements or displacement of bones. The back and neck should not be manipulated. Ideally, a piece of wood is used to carry the animal. When necessary, a stretcher can be made from a blanket or coat. The least desirable method of transport is arm carriage.

Commonly encountered emergency problems include profuse diarrhea with dehydration, inability to urinate, labored breathing, enlarged abdomen, seizures lasting more than 5 minutes, loss of consciousness, excessive bleeding, history of poisoning, prolapsed organs, potential snake bite, shock, collapse, pale gums, open wounds exposing extensive soft tissue or bone, dystocia, absence of breathing, protracted vomiting, and inability to walk. These problems, or abnormal parameters found on the at-home physical examination, should alert the owner to seek emergency care for the animal.

If poisoning is suspected, immediate veterinary attention is required. If possible, bring in the container or a sample of the product. Do not initiate vomiting without contacting the veterinarian first.

One of the most acute emergencies is gastric dilatation-volvulus syndrome (bloat). It occurs primarily in large breeds of dogs.

Published protocols for the initial management of dogs with GDV recommend immediate gastric decompression and lavage with sequent fluid and glucocorticosteroid therapy. Since 1982, a protocol has been employed in the Veterinary Hospital of the University of Pennsylvania emergency service for the initial stabilization which differs from the published recommendations. The protocol promotes fluid volume replacement, glucocorticosteroid administration, and correction of significant ECG alterations prior to gastric decompression. A review of our case records from 1984 until present finds a mortality rate of only 20%, with 17 deaths of 89 dogs with GDV. This is a substantial reduction from reported mortality rates. We feel strongly that this increase in survival is largely due to therapeutic support of blood volume and blood pressure prior to gastric decompression.

Emergency care for animals has come a long way and is now considered a special discipline. Equipment and treatment are as sophisticated as in human hospitals and the survival rates have increased greatly.

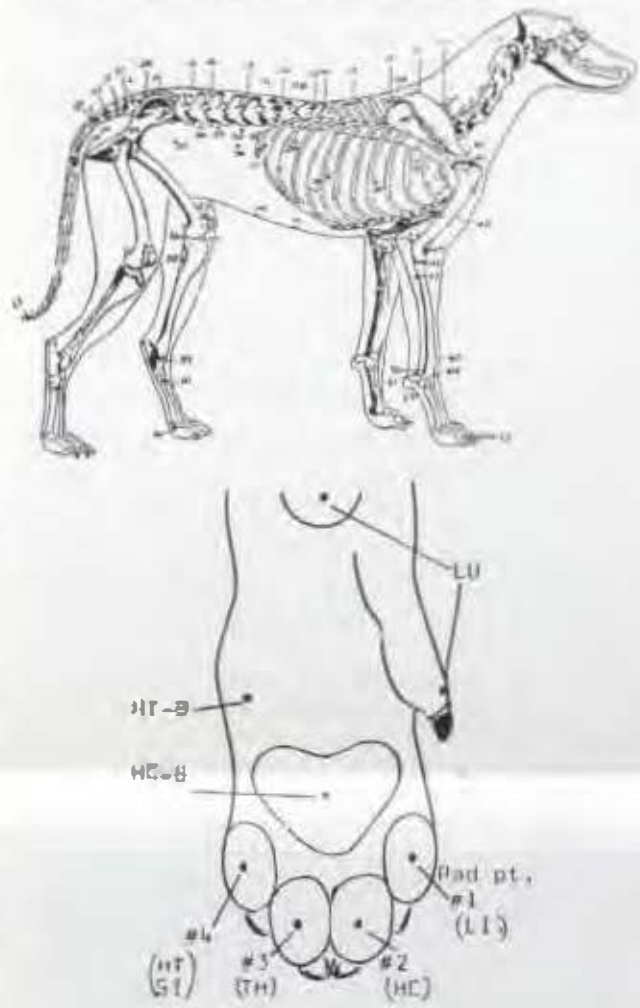
Small Animal Veterinary Acupuncture

Practiced in China for more than 4,000 years, acupuncture recently has been accepted by Western medicine and veterinary medicine as an additional avenue of treatment. Dr. Meredith L. Snader, a practitioner from Chester Springs, Pennsylvania explained that in China acupuncture treatment is commonly used to treat disease in humans, food animals, horses and beasts of burden.

Acupuncture is deeply rooted in Chinese philosophy. It is thought that the body, its organs and their function interact and react to each other to maintain a balance, "yin yang," and that disease results when this balance is upset. The Chinese believe that acupuncture can be used to manipulate the body's basic dynamic energy to redirect its flow and restore the balance. Elaborate charts showing the acupuncture points for the different organ systems were developed. Location of the acupuncture points is based on the ancient belief of the body's energy flow and the organ interaction.

Researchers have found that the designated acupuncture points have distinctly different electrical properties. They show a diminished electrical resistance, and they have a greater density of neuroreceptors than adjacent tissue. Most of the points are near major nerve trunks and manipulation can have an effect on different areas of the body. Research has shown that acupuncture stimulation, even a single needle insertion, excites nerve cells and synapses in the spinal column that have an inhibitory effect on pain. Pain sensations are blocked out by stimulating an acupuncture point. It has been shown that acupuncture causes cells in the brain and the spinal column to produce certain morphine-like, painkilling substances, and that stimulation of specific acupuncture points can increase the production of hormones. It has also been demonstrated that acupuncture can change the level of white blood cells in the body. The mechanism of these phenomena is not clearly understood and research is continuing in an effort to explain it.

The traditional tools of the acupuncturist are fine, dull needles, ranging in length from 1/4 to 8 inches. They are made of steel, silver, or gold, depending on their purpose. The needles are inserted at the point



or points and then manipulated either slowly or fast, depending on the desired effect. Because the needles are dull, they push the tissue apart and little or no bleeding results from the insertion. Other acupuncture tools are tiny gold beads which are inserted under the skin, or small steel balls which are taped to an area to provide pressure. The contemporary acupuncturist also utilizes electric current, laser beams and ultrasound. Injections of air or water may also be used. In some cases, the needles may be heated.

Dr. Snader said that acupuncture can be used in place of anesthesia, and that the Chinese employ it for such complex procedures as open heart surgery. However, such use is limited in animals as they will not stay in one position too long. Also a great number of people are needed manipulate the needles, hold down the animal, and perform the surgery.

In Western veterinary medicine acupuncture is not used for treatment of viral or bacterial infections. Rather it is employed for chronic pain problems which have not responded to other treatments such as drugs or surgery.

Frequently it is a treatment for horses with lameness problems. Dr. Snader applies it with success for dogs and cats with arthritis, dogs with herniated discs and for animals which have chronic bouts of bloating (without torsion). It has been used to control lick granuloma, epilepsy and to treat megaesophagus in the dog. Dr. Snader explained that the Chinese acupuncture charts do not include charts for dogs, these were developed recently by Western veterinarians by transferring known acupuncture point locations to the anatomy of the canine. The majority of Dr. Snader's patients are horses, though she treats a good number of dogs and cats. Dr. Snader is the executive director of the International Acupuncture Society, a world-wide organization for veterinarians with about 200 members.

Threat of Rabies Puts Livestock at Risk

A dramatic rise in animal rabies cases in the Philadelphia suburbs poses a serious threat to unvaccinated domestic livestock and owners should be certain to have their animals inoculated against the fatal disease, a University of Pennsylvania veterinarian warns.

"We are seeing an alarming number of cases this year of farm animals with rabies," said Jonathan Palmer, assistant professor of medicine at Penn's Large Animal Hospital at New Bolton Center in Chester County. "Just as owners of cats and dogs are urged to vaccinate their pets against rabies, owners of horses, cows and sheep are reminded to do the same."

Horses, cattle and sheep should be vaccinated at three or four months of age, and again when they are a year old. The animals require booster shots every year.

Palmer said that livestock generally contract a form of rabies known as the "dumb form." Unlike the "furious form," where affected animals exhibit very aggressive behavior, animals with the dumb form do not show such marked symptoms.

"Livestock with rabies will usually appear depressed," Palmer said. "The animals will not show normal activity, and it is very clear they are sick. While they may not bite, they still may shed the virus and possibly transmit it to humans and other livestock."

If the horse or cow develops the less common furious form, it may become very excitable and unusually aggressive to people and other livestock.

Once rabies has been diagnosed, the animal must be destroyed, Palmer said.

"It is important for those in the livestock industry to realize that vaccinating livestock not only protects people, but guards against losses among their valuable animals," he said.

U.H.

Dr. Gustavo Aguirre installs the plague at The Laboratory for Ocular Ultrastructure at the Veterinary Hospital of the University of Pennsylvania on May 31. The laboratory contains the electron microscope and other sophisticated equipment of the Inherited Eye Disease Studies Unit. The generous support of the Frances V.B. Seeba Trust made this laboratory possible.

Dr. Aguirre and Mrs. Patti Telegan, research specialist, at the electron microscope.

12th Annual Feline Fanciers Symposium

The 12th Annual Feline Fanciers Symposium was held on April 15, 1989 at the Veterinary Hospital of the University of Pennsylvania. More than 120 cat breeders and owners were in attendance, some having traveled all the way from California.

The event received support from The IAMS Company, Mrs. R.V. Clark and Mrs. Edith Young, Cat Mews, and The Student Chapter of the American Association of Feline Practitioners.

In addition to four scientific presentations, Mr. Richard Gebhardt illustrated characteristics of different breeds of cats during The Parade of Breeds. Following are summaries of the talks.

Skin Allergies

When it comes to skin allergies, cats are very frustrating to diagnose and treat because there is tremendous variability in the presentation of one cat from another that has the exact same disease, and there are also a lot of similarities among the different allergies, according to Dr. Kevin Shanley, assistant professor of dermatology, who spoke about four basic skin allergies.

Also, cats can have more than one allergy at a time, which complicates matters further.

Flea allergy dermatitis is by far the most common allergic skin disease in cats. Cats often begin showing signs of flea allergy when they are between one and six years old. The areas most frequently affected include the tail base, back and abdomen. The neck area, inside and back of the thighs are also frequently affected. Flea allergy usually affects cats during the summer and fall but can be a year-round problem, particularly in indoor cats; exclusively indoor cats, however, are much easier to treat.

There is a tremendous variation in clinical signs in cats with flea allergy. The earliest sign may be an increase in the amount of grooming, which is often difficult to notice — especially in a multiple-cat household, where you may not notice an increase in grooming — and may not cause any skin disease. Other cats will lick and chew enough to cause hair loss. Although it frequently looks as if the cat's hair is falling out, close examination reveals that there is a 'stubble' of hair remaining. This stubble can be seen with other itchy skin diseases as well as flea allergy dermatitis.

Miliary dermatitis is probably the most common presentation for flea allergy. Cats with miliary dermatitis have several to hundreds of tiny crusts scattered over the back, neck, tail base and head, but may have them generalized over the entire body. Another common syndrome seen in feline flea allergy is the eosinophilic granuloma complex. This syndrome consists of three clinical conditions: the indolent ulcer; the eosinophilic plaque; and the linear granuloma. The eosinophilic plaque and linear granuloma forms are most frequently associated with flea allergies. These are red, raised, hairless areas usually seen on the abdomen (eosinophilic plaque) or on the back of the rear legs (linear granuloma); they are not eruptions in themselves, but rather some allergic reaction in the cat's skin worsened by licking or scratching. One, or better still, several biopsies of the skin is necessary to confirm this diagnosis, supplementing clinical observation — and working with pathologists who specialize in skin disease is preferable.

The diagnosis of flea allergy ranges from very easy to very difficult. Often it is based on clinical impressions at examination, with the addition of information about the animal's history. A flea comb helps collect fleas and flea dirt — but the most important point to remember is that the lack of fleas or flea dirt does not negate a diagnosis of flea allergy. "That's the most difficult thing for clients and breeders alike to appreciate," Shanley said. Fleas only spend 15 to 20 minutes a day on a cat and the rest of the time in the house or environment, and flea dirt is often removed by the cat during routine grooming. Still, severely allergic cats may need only one or two flea bites a week to keep the skin disease going. An intradermal skin test can also show if the cat is allergic to fleas.

Another important factor in diagnosing flea allergy is response to aggressive, appropriate flea therapy. When treating for fleas, the environment and all cats and dogs must be treated routinely and frequently. Minimizing outdoor exposure will also help decrease the exposure to fleas (although indoor-only cats can be exposed to fleas at the veterinarian's office, or at a veterinary hospital, or at cat shows).

When treating cats, Dr. Shanley's favorite types of products are flea sprays in a brushette or foam/mousse products. Cats usually don't tolerate shampoos or dips very well, and their effectiveness is limited. In general, only flea products approved for use in cats, should be applied and label directions should be followed. Cats are more sensitive to flea products and insecticides than dogs, and one should be conservative about potential toxicity. Dr. Shanley prefers using sprays or exterminators rather than foggers for indoor treatment.

Additional therapy may be needed to decrease the itching (pruritus). Antihistamines and corticosteroids are used with good temporary success in most cats. Progestogen therapy (Ovaban, Megace) may also help but is much more likely to cause serious side effects.

A cat with self-induced hairloss where a flea allergy was the underlying cause of the itching.

Food allergy is the second most common allergy in cats, says Dr. Shanley. It may begin at any age (from two months to 15 years old), and lasts year-round. It usually causes severe itching of the head and neck, but can also imitate flea allergy types and patterns of skin disease including hair loss, miliary dermatitis and eosinophilic granuloma complex. A change in diet is not necessary to cause food allergy as many cats become allergic to a diet only after eating it for two or more years.

Diagnosis of food allergy is difficult and can only be made by discontinuing the current diet and changing to a hypoallergenic diet which contains foods the cat has never eaten, often some form of lamb. This hypoallergenic diet is usually fed for two to three weeks, and then the cat is challenged with its regular diet. If signs improve on the hypoallergenic diet and recur when the regular diet is reintroduced, food allergy is diagnosed. The cat is fed the hypoallergenic diet and single foods are gradually added to identify which ones are causing the allergy; typically, the cat is allergic to one or several protein sources rather than a cereal. Treatment is simple: all offending foods are avoided for life.

Dr. Shanley continued, saying that allergic inhalant dermatitis is an uncommon allergy of cats that usually begins at one to six years of age. It occurs in indoor and outdoor cats and varies greatly in the type and location of skin disease. Cats breathe in pollens from the outside and indoors and react with allergic skin disease. Skin lesions imitate flea and food allergies (hair loss, miliary dermatitis or eosinophilic granuloma complex). There are usually no respiratory signs (coughing, sneezing) associated with this disease; feline asthma occurs independently from allergic inhalant dermatitis.

The diagnosis of allergic inhalant dermatitis includes ruling out flea and food allergies, then performing an intradermal allergic skin test to identify which pollens cause the allergy. Therapy is aimed at reducing the reaction in the cat by using a hyposensitization vaccine. Adjunctive therapy as used with flea allergy can also be used (antihistamines, corticosteroids).

Contact allergies are extremely uncommon in cats and are due to an allergic or irritant reaction, Dr. Shanley said. Virtually anything that comes in contact with a cat's hair coat or skin — such as shampoo, medication or highly-refined, perfumed kitty litter — can cause a contact dermatitis. Some flea collars, in fact, used to be a common source of contact allergies or irritants, but they have less irritant potential today. Because of the varied causes of contact allergies, the presentation is extremely variable and the diagnosis is often difficult. Treatment consists of avoiding further contact with the offending agent.

Dandruff, by the way, has a variety of causes, and is normal in a small amount. Excessive amounts can be either the result, or the cause of itchiness.

Peritonitis

Dr. Ann Jeglum, assistant professor of medical oncology at Veterinary Hospital of the University of Pennsylvania, spoke about feline infectious peritonitis (FIP), an important, complex and potentially fatal disease that affects both domestic and wild members of the cat family. There are no resistant members of the cat family.

Unfortunately, there is not much optimistic news about FIP right now. "As far as expecting that we might have new and successful treatment, I can't really say that," Dr. Jeglum said. "And in the area of vaccine, which all of us are very anxious to see come onto the scene, there's nothing there, either.

"But FIP can be understood, and there are ways to prevent it. And this is where we can have the most impact today."

FIP is caused by a virus that is part of a group (coronaviruses) which infect several species of birds and mammals, and that cause upper respiratory and gastrointestinal disease, hepatitis, serositis (inflammation of the external lining of body cavities) and encephalitis. Testing for FIP is difficult because several of the viruses in the corona family affect cats.

Interestingly, because FIP is not confined to infection or disease in the abdominal cavity or the peritonitis and can affect any organ, there is a movement to change the name of the disease.

It appears that either the incidence of the disease is increasing or that our recognition of FIP, since it was first recognized in 1963, is improving. At lease 25 percent or more of cats in the United States test positive for FIP, although only one to three percent of FIP-positive cats ever develop the fatal disease.

There is no known environmental reservoir for the virus; this virus needs the cat's body to survive, and will die on its own in a day or two. Heat, ether and formalin will also kill the virus. Bleach, in a dilution of one-to-32, is the easiest and least expensive product for cleaning up after an infection.

The natural route of transmission is unknown, but it is likely that the initial infection results from ingestion or inhalation of the virus, or both. The virus is excreted into the environment in a number of ways — in saliva, respiratory secretions, feces and urine. Close, concentrated contact between cats is usually required for transmission (which is why the incidence of the virus, and the actual fatal disease, is high in multiple-cat household and catteries), although the specific activities that permit this transmission are not yet known; it has, however, been transmitted across the placenta.

Cats that are carriers of feline leukemia or feline immunodeficiency viruses, which directly affect their immune systems, are probably more susceptible to infection with FIP, Dr. Jeglum said.

And ninety percent of cats who develop FIP are younger than three years old. No breed or sex dispositions are seen in some studies, while others report it higher in male cats.

In an experimental setting, the incubation period for this disease may be as short as two to six weeks, or as long as four to six months. Natural transmission frequently occurs within several weeks after susceptible animals are housed with asymptomatic carrier cats.

One of the initial infection signs that occurs right after exposure and infection may be a mild respiratory infection, especially in newborn kittens. Two weeks after infection, FIP may produce localized upper respiratory disease in 25 percent of cats, causing either a slight ocular or nasal discharge, or both. The other 75 percent of cats will have no apparent signs of infection. Most of the cats initially infected, although asymptomatic, will probably remain infected and become virus carriers. It is not yet known how long infected cats harbor the virus, or how long they shed the virus, and by what route.

The factors that cause that small percentage of cats to develop the secondary and fatal disease are also not known, but probably involve altered or deficient immunologic mechanisms. FIP is an immune-mediated disease, which means that the antibodies mounted by the cat to fight the virus actually contribute to the development of the disease.

Dr. Jeglum stressed the importance of remembering that the presence of serum coronavirus antibody in any cat indicates only exposure to a coronavirus; it does not indicate that a cat actually has FIP, since many healthy cats and many cats with diseases other that FIP are also coronavirus antibody-positive. But although it is possible that 'mild' cases of FIP may occasionally occur, the vast majority of cats that develop secondary FIP will die, usually within a few weeks or months of onset; supportive care from the owner can sometimes prolong life for a short while.

There are two distinct clinical forms of secondary FIP, both of which are fatal and occur in equal frequency: effusive peritonitis or pleuritis (wet or noncavitary FIP), and chronic granulomatous or dry FIP which affects specific organs, especially components of the central nervous system and eyes. The onset of clinical signs of secondary FIP may be sudden (usually in very young cats) or slow, and the severity of symptoms usually increases over a period of weeks.

"One of the problems in this disease is diagnosis," said Jeglum. "The clinical signs initially are not very specific — it's just a sick, poor-doing cat. They don't jump out to the veterinarian and say 'FIP'. But the problem is these are the same clinical signs that we see with infection with the feline leukemia virus, or now infection with the feline immunodeficiency virus."

The clinical signs of wet or effusive peritonitis are related to whether the virus is affecting the chest or abdominal cavity, or both. Signs include chronic weight loss, depression, a variable fever and, the most common manifestation, either abdominal distention and/or difficult breathing due to accumulation of fluid in the abdomen or chest. Symptoms affecting the eyes or central nervous system are occasionally seen as well. Diagnosis is based on the analysis of the fluid taken from the chest or abdominal cavity, serum proteins and hemogram changes, although biopsy is the only *definitive* method of diagnosis.

Dry or granulomatous FIP is much more difficult to diagnose because this variety lacks the typical fluid accumulations. It is characterized by pyogranulomas (multifocal necrotic lesions with inflammatory cells). The granulomas are commonly widespread but clinical signs are usually referable to one or two involved organs.

The clinical signs of dry granulomatous FIP include chronic weight loss, dehydration, anorexia and depression. Fever (103 to 106 degrees) is commonly seen with dry FIP and is unresponsive to antibiotics; it does respond to steroids. Other clinical signs are related to involved organs:

1. Kidneys are commonly involved and irregularity is due to developing granulomas. The kidneys may be large or small.
2. Ocular changes are very common in both dry and wet forms of FIP and characteristically affect the vascular tunic (uvea). Mild corneal edema and flame-shaped retinal hemorrhages appear early in the disease.
3. Central nervous system signs are also common, with spinal cord or brain involvement. Clinical signs are related to the areas affected, but include posterior incoordination and tremors. Seizures and paralysis are also seen.
4. GI involvement, with abdominal pain and constipation, sometimes occurs.
5. Liver or pancreatic involvement is not uncommon. The liver may be enlarged. Diabetes mellitus or pancreatic insufficiency are possible, although rare complications of FIP.
6. The lungs can be involved, ending up in a pneumonia.

The difficult diagnosis of dry FIP may include a hemogram, analysis of plasma proteins, indication of elevated bilirubin and liver enzyme levels, and more. Abnormalities of the specific organ systems involved are also checked.

In both forms of FIP, however, biopsy provides the only definite diagnosis.

The goal of treatment is to suppress the immune system, since the entire evolution of the disease is related to the antibody production. "I honestly can't say whether in all the cases I've attempted to treat whether I think the drugs we've tried have done anything or not," Jeglum said. "We can see clinical improvement. We see some decrease in the antibody titers. But I can't say that we dramatically turn about the course of the disease."

There is no preventative vaccine available although research continues. Testing, to identify carriers, is important in a multiple-cat household. New cats, especially, should be tested when introduced to a household.

Taurine and Heart Disease in the Cat

Dr. Malcolm MacDonald, a cardiology resident at VHUP, continued with a presentation about taurine and heart disease in the cat. Unlike most other mammals, the cat is remarkable in its degree of specialized nutritional needs, he said. And due to its metabolic peculiarities, the cat is particularly prone to diseases caused by taurine deficiency.

Taurine is an amino acid that has a variety of important functions, including vision and retinal structure, the production of bile and bile salts (important for normal digestion), normal reproduction and growth, neurotransmission and structure and function of the heart. Since high levels of taurine occur in platelets and granulocytes, taurine may also have roles in coagulation and immune function.

Cats cannot metabolize adequate amounts of taurine; they have to get it in their diet. But it has only been since the mid-1970's that the dietary requirement of the cat for taurine was established, based in great part on studies that found degenerative lesions of the central area of the retina (Feline Central Retinal Degeneration, or FCRD) could be prevented in cats being fed commercial cat food (consisting mostly of casein, a milk protein) if the diets were supplemented with purified taurine. The nutrient requirements of cats were reviewed by the National Research Council in 1978, at which time it was recommended that all cat foods contain at least 500 parts-per-million taurine.

Since that time, it has been recognized that taurine plays a variety of other important functions, culminating in the discovery, in 1987, of the role of taurine in the function of the cat's heart. Dr. MacDonald explained that the heart can be thought of as a pump, the function of which is to supply blood to the tissues of the body to meet their requirements for nutrients and oxygen. As in any pump, the heart has a driving mechanism (the heart muscle or "myocardium"), and a series of valves. When a disease is present either the myocardium, the valves — or both — may be affected. As in all animals, heart diseases in the cat fall under the broad category of "cardiomyopathies," or diseases of the heart muscle; in fact,

cardiomyophathies may account for 85 percent of cat heart diseases.

One of the most common variations of cardiomyopathy was dilated cardiomyopathy, where the walls of the left ventricle (the pumping chamber responsible for pumping oxygenated blood to the body) lose much of their contractile function, followed by the enlargement of the left ventricular chamber and the thinning of the left ventricular walls. As a result, the left ventricle is ultimately unable to eject sufficient blood to satisfy the tissue needs of the body, and heart failure ensues. Until 1987, there was no known cause of dilated cardiomyopathy in cats; it is, however, this form of heart disease that has been associated with taurine deficiency. In 1986 Dr. Paul Pion, then a cardiology resident at the University of California at Davis, was presented with a cat named "El Blanco," which was referred to the University because of paralysis of the rear legs. The paralysis was due to a blood clot that obstructed blood flow to the rear limbs, a common complication of cardiomyopathy, and the cat was diagnosed as having underlying dilated cardiomyopathy. Coincidentally, the cat had been diagnosed as having FCRD a year earlier. This prompted Dr. Pion to consider that taurine may have played a role in the development of the cardiomyopathy.

A colony of 11 cats known to be taurine deficient were studied, and two were found to have dilated cardiomyopathy. Subsequently, taurine levels of 21 cats with dilated cardiomyopathy were then measured, and found to be abnormally low. Supplementation of the diets of those cats that survived the episode of acute heart failure resulted in resolution of the heart disease.

According to Dr. MacDonald, the signs and symptoms of cats with all forms of cardiomyopathy are rather similar, and the specific diagnosis is difficult to make without supportive testing. Affected cats frequently have a history of being quiet and less active than usual for a few days, and often have not eaten well for a similar period. Many, however, seem completely normal until they develop overt clinical signs.

The most common signs seen are severe shortness of breath, due to the collection of fluid in the lungs, or around the lungs. Other signs include weakness, pale or blue-grey mucous membranes, weak pulses, low body temperature, rapid heart rates, heart murmurs, abnormal cardiac rhythms, and paralysis. A few cats may die suddenly.

The electrocardiogram and chest radiographs may help support the diagnosis of cardiomyopathy, and may also lend some insight into the type of cardiomyopathy present. The differentiation between types, however, is best made by the use of high frequency sound waves — a technique called echocardiography. Facilities for echocardiography are available in most universities, many referral practices and a growing number of general veterinary practices. Accurate differentiation can also be made using radiographic dye studies called angiograms.

There is not, at this point, any conclusive breed specificity or disposition toward dilated cardiomyopathy; currently, there is no good evidence that there is a specific genetic link to dilated taurine deficiency cardiomyopathy in any group. Taurine deficiency is, however, more common in older cats.

Treatment of cats affected with cardiomyopathies depends on supporting the cardiovascular system using a variety of agents. Diuretics (drugs that encourage the removal of excess fluid that accumulate as a result of heart failure) are often helpful. In the case of dilated cardiomyopathy, agents known as positive inotropics — which support the strength of contraction — may be beneficial; the most classic of these is digitalis.

Agents which dilate blood vessels, may help reduce the resistance against which the heart has to pump blood may also be useful. These agents, known as vasodilators, may also be of benefit in altering the relative proportions of the blood and vascular volumes so that less fluid tends to accumulate in areas such as the lungs, and several other benefits may occur.

High levels of taurine supplementation in cats with dilated cardiomyopathy allows body stores of taurine to be replenished and, in the majority of cases, normalized. Cats that have taurine-responsive cardiomyopathies begin to improve clinically in four to seven days. Evidence of objective improvement can often be measured using echocardiography in three to six weeks, and cats may return to completely normal in approximately three months. Once normalized, these cats can be discontinued from other medications.

Dr. MacDonald said that the discovery of the role of taurine has made a dramatic difference in the incidence and types of heart diseases seen in the cat. The supplementation of commercial cat foods with taurine by the majority, if not all of the major pet food manufacturers has dramatically reduced the incidence of dilated cardiomyopathy. Currently it is suggested that dry cat foods should contain 1000 to 1200 mg. of taurine per kilogram (kg.) food (dry matter), and that canned foods should contain 2000 to 2500 mg. of taurine per kg. of dry matter. Taurine supplements would be useful if a cat is being fed a special diet, such as a hypoallergenic diet, where the amount of taurine intake is unknown and possibly low.

There are almost certainly variations among cats in their requirements for taurine, as evidenced by the occurrence of dilated cardiomyopathy in single animals in households where there are multiple cats are fed the same diet. And almost certainly there will be situations in which other conditions will cause some cats to become deficient in taurine, such as a gastrointestinal disease. Processing of foodstuffs, storage and feeding practices may also prove influential, leading to the conclusion that common sense feeding practices — such as feeding a variety of good, quality foods — would be prudent.

While it is almost certain that not all cases of dilated cardiomyopathy are due to taurine deficiency, it appears true with the majority of affected cats. Happily, when dilated cardiomyopathy is diagnosed the chances of resolution of return to normal function are good, provided the cat can be supported through any acute crisis. When dilated cardiomyopathy is diagnosed now, it is no longer the hopelessly devastating disease it once was.

Feline Nutrition

Cats have evolved unique nutritional needs and feeding behavior patterns, the result of the fact that they are strictly carnivorous, according to Dr. Ed Kane, manager of the Friskies Feline Center in Seattle, who spoke about feline nutrition and feeding.

In the wild, cats are the ultimate predators and meet all their nutritional requirements by consuming most, if not all, of their prey. But over the centuries, the cat has changed from an active, prey-catching carnivore to a domestic feline that thrives on both a meat (canned cat food) and grain (dry cat food) based diet.

Still, throughout this transition period, the cat has maintained its specific nutrient requirements. In fact, today's domestic cat diet mimics the nutrient content of what the cat would get as a predator. A rodent consumed whole, for instance, provides water, protein, fat, vitamins, minerals and a trace of carbohydrates.

In the wild, cats ate a number of small meals throughout the day, which cats will do today if you leave out dry food. "Also, the cat of today will coerce us to feed it according to its schedule," Kane said.

A balanced diet includes all the nutrients required in the proper proportions to each other and in the proper amounts. Some of the feline's special needs include the following:

Vitamin A. Because cats do not have sufficient quantities of the enzyme that converts beta carotene to Vitamin A (beta carotene is the vegetable source of Vitamin A), they must obtain Vitamin A from animal tissue. In nature, liver is the cat's best source of Vitamin A. A deficiency of this vitamin can cause impaired sight vision, poor growth, weight loss, damaged membranes and decreased resistance to disease. Queens lacking Vitamin A may fail to cycle; the embryo may fail to implant; or the queen may abort or produce kittens with abnormalities, such as cleft palates.

Niacin. Many animals, including the dog, can synthesize niacin from the amino acid tryptophan, but in the feline this ability is negligible. Therefore, the cat's requirement for niacin must be met entirely from animal sources (plant matter does not contain sufficient niacin). Symptoms of a niacin deficiency include weight loss, unkempt fur, esions around the mouth and loss of appetite.

Essential Fatty Acids. Cats require arachidonic acid, a fatty acid found only in animal tissues. Cats can make a slight bit of arachidonic acid, but not enough to maintain themselves. Dermatitis and poor reproductive performance are among the symptoms of a deficiency.

Taurine. Touching briefly on what had been covered thoroughly by Dr. MacDonald's presentation earlier in the day, Dr. Kane reiterated that taurine, an aminosulfonic acid, is important for the cat's eyes; taurine deficiency causes retinal degeneration. Also, taurine plays a role in the development of dilated cardiomyopathy, a condition in which the heart muscle loses tone and becomes dilated — more like a balloon than a pump. Taurine deficiency in the queen during gestation has been reported to cause resorption, stillbirths or low birthweight kittens. Kittens grow poorly and may exhibit neurologic abnormalities. Compared to other species, the feline's need for taurine is quite high because it cannot synthesize sufficient taurine and it "wastes" a considerable amount of taurine during formation of bile salts. Meat, fish and shellfish are very good sources. Taurine is present in all cat foods, although will only be listed on the label if it was added as supplement above and beyond the taurine found in ingredients.

continued on next page

continued from page 9

such as muscle meat.

All these nutritional peculiarities come from the fact that the cat is a carnivore, and these necessary nutrients are not generally found in plant tissue. As a result, the cat needs a source of animal tissue in its diet; a vegetarian diet for cats would have to be formulated extremely carefully, and include supplementation. (Do not attempt to supplement your cat's diet on your own, consult your veterinarian.)

In addition to a balanced diet, cats need plenty of fresh clean water. A cat can have a serious health problem with only a 10 percent water loss. During the summer months, water is essential to prevent dehydration and water loss. Cats fed a canned food diet will probably not drink any water at all, since meat-based diets contain about 75 percent moisture. Cats on a dry food diet will drink about twice as much water as they consume in dry food.

Dr. Kane spoke about the pros and cons of feeding cats specific foods. For instance, the lactose in milk causes digestive upset, especially diarrhea, in most cats. Skim milk is not necessarily more easily digested.

Cats do not do well on raw fish, especially carp, because such fish contains an enzyme that destroys thiamin, or Vitamin B-1. Otherwise, fish is a good balance of protein, taurine, niacin, choline and Vitamin A.

A variety of recent studies have shown that aroma texture, taste and consistency enhance the palatability of the cat's diet. Still, cats will have special preferences for certain foods. "Treats — yogurt, broccoli, or whatever a cat fancies — should only make up about 10 to 15 percent of the cat's diet," Dr. Kane said. "For example, by feeding a single ingredient such as hamburger, the calcium to phosphorus ratio can be significantly affected."

Not surprisingly, calorie needs vary at different points of the life cycle. The inactive and active adult needs roughly 70 to 85 calories per kg of body weight. But a lactating queen, or a very young kitten, needs three times that amount.

Ideally, when feeding canned food (which provides roughly one to one-and-a-half calories per gram), one ounce per pound of body weight is the 'golden rule,' Dr. Kane said. That will maintain the cat at a healthy body weight. The appropriate serving size of dry food (which generally provides at least four calories per gram) is roughly one-third ounce per pound of body weight. These are only guidelines; the needs of individual cats will vary.

Males, who grow a bit faster, reach a higher body weight than females. Studies show that at least 90 percent of the feline population maintains a proper body weight if left on their own and fed free choice. Feeding cats more often, but feeding a smaller amount, can help overweight cats lose some weight — and you can also cut back a cat's calorie intake by one-third if it needs to lose some weight. Toys or other objects that trigger play, are also very important because they help cats burn off excess calories.

The pet food label provides a great deal of information. The phrase "nutritionally balanced" means the product offers the right combination of nutrients in the proper amount. A "100 percent nutritionally complete" product will be identified as satisfying a cat's nutritional requirements, regardless of its stage of life.

Despite previous thought to the contrary, ash content per se is not related to Feline Urinary Syndrome (FUS). Nor is magnesium as primary a factor as initially concluded. Studies showing an increase in FUS, in tandem with increasing levels of magnesium, involved unnaturally high levels of this element.

FUS starts with an irritation of the lining of the urinary bladder. Affected animals experience pain and difficulty when trying to pass urine. In the most severe form, FUS involves complete blockage of the urethra, the tube emptying the bladder. Male cats experience this blockage much more commonly than females because the urethra is narrower in the male. In about 80 percent of FUS cases, the blockage is caused by a plug comprised of a combination of mucus and a crystalline mineral known as struvite.

A slightly acid urine (below a ph of 6.5) is essential to a healthy feline urinary tract, and the cat benefits from a diet that promotes a slightly acid urine. A slightly acid urine keeps the elements of the struvite crystals in solution; if the urine becomes less acidic, these elements may form crystals and begin to precipitate, leading to FUS problems. A high protein meat-based diet provides a slightly acid urine. Dry cat foods can also be properly formulated to do so. Again, lots of fresh, clean water should be provided.

The age group most frequently afflicted by FUS is the young adult between one and six years old. Cats prone to FUS usually experience their first episode by the age of three. Although FUS is a major health concern of cat owners, a recent survey has shown that FUS occurs in less than one percent of all cats. And diet is only one cause of FUS.

LF

Centennial Medal for Dr. Allam

The highest honor of the School, the Centennial Medal, was presented to Dr. Mark W. Allam, dean emeritus, during the dinner celebrating the successful conclusion of the Second Century Fund Campaign.

University President Sheldon Hackney made the presentation and read the following citation:

Mark Whitten Allam, surgeon, educator, a veteran of world warfare. University Vice President and eighth Dean of the School of Veterinary Medicine.

As a surgeon you were a pioneer in bringing veterinary surgery from the Dark Ages to its present highly sophisticated level. You were a founding Father of the American College of Veterinary Surgeons and you were a vital force in developing the revolutionary Core Elective Curriculum in the Veterinary School. Your reputation in surgery, education, as in professional affairs, carried far beyond the boundaries of the University of Pennsylvania and brought the School international attention.

In overseeing the remarkable evolution of the Veterinary School's fabric between 1953 and 1973, you were unafraid to embark upon uncharted courses and your vigor and vision inspired the faculty and others to lend their support and efforts to bring the School from a small, provincial institution to one of the top flight veterinary schools in the world. You were the architect and prime-mover in developing New Bolton Center from a simple farm to a premier center for research and clinical work on livestock and horses. As Dean you oversaw a major growth of the Philadelphia Campus and a radically different and more efficient administrative structure. Under your guidance the Faculty grew from a small, relatively untrained, body to one of the best in all veterinary medical education.

Through all of this you enriched the Veterinary School's relationship to the University Administration, to governmental agencies, agricultural and pet associations and to foundations and private supporters of the School.

Your years as Dean can truly be looked upon as "Golden Years" for the School of Veterinary Medicine and your legacy lives today. We applaud your extraordinary efforts, and at this time we invite you to accept the School's highest accolade, the Centennial Medal.

A group of Russian officials visited New Bolton Center in March. Shown here are, left to right, Yuri G. Nikulin, deputy department head, administration for foreign relations, USSR Agroindustrial Committee; Victor A. Ivanov, deputy general director, All Union Association of Horse Breeding, and chairman, All Union Association of Foreign Economic Relations of Horse Breeding; Dr. David Nunamaker; Dr. Arnold Laskov, chief of the laboratory of the physiology of horse training of the USSR; Victor Tantsov, chief zoo technician at the Chesnovsky stud farm.

Animal Crackers

Vaccination Schedule for Cats

All cats should be vaccinated against feline panleukopenia virus, feline calicivirus, feline viral rhinotracheitis and rabies.

At VHUP (Veterinary Hospital of the University of Pennsylvania), only vaccines containing killed virus are used. Vaccination should be done under your veterinarian's supervision and schedules may vary with different veterinarians.

VHUP recommends a combined vaccine (panleukopenia, calicivirus and rhinotracheitis) at 8 - 10 weeks of age and again at 12- 14 weeks with annual revaccination. Three months is the age for the primary rabies vaccination, repeated at one year of age - then revaccination every two years.

There is a vaccine against Feline Leukemia (FeLV), but this is not used routinely at VHUP.

Leeches

Leeches have been used in human and veterinary medicine for thousands of years. Even in the early 20th century, bloodletting was used as treatment. Using leeches was considered less painful than actually cutting blood vessels. It is now recognized that the use of leeches has some value, although in the past they may have worsened many conditions and probably transmitted some diseases. Now they are used to remove blood and reduce swelling from transplants. Veins heal more slowly than arteries, causing a build-up of arterial blood. Application of leeches for five days removes the arterial blood, giving veins time to heal and regain normal function. An American company obtains medicinal leeches from Wales and sells thousands for surgical uses.

Most Popular A.K.C. Breeds

In 1988, the American Kennel Club registered 1,220,500 dogs of 130 breeds, a new record high. Cocker spaniels lead the list for the sixth consecutive year. Labrador retrievers moved up to second place while Poodles dropped to third. Unchanged from 1987, Golden retrievers, German shepherd dogs and chow chows are fourth, fifth and sixth. Rottweilers moved to number seven (from twelve in 1987). Beagles were number eight (seven in 1987), dachshunds remained number nine and Miniature schnauzers were tenth (eighth in 1987).

Of the seven groups recognized by A.K.C., sporting breeds led in number of registrations, followed by non-sporting, toy, working, herding, hound and terrier.

There were 1075 dog shows held in 1988, 364 obedience trials and 1535 specialty shows. At the largest all-breed show (Santa Barbara, California) there were 3,422 dogs competing. When considering a breed, a visit to a show is preferable to making a decision from a picture. You should know the difference between a puppy and an adult. Grooming and trimming requirements also should be investigated.

Warm Weather Notes

When the weather is hot, it is advisable to limit exercise to early morning and evening when it is cooler. Water should be readily available and bowls kept clean. Do not feed during the heat of the day. Warm weather brings an increase in Parvovirus cases. Keep vaccination up-to-date. Flies carry the virus, so remove uneaten food promptly. Avoid contact with fecal material.

Heartworm preventive medication is recommended wherever there are mosquitoes. *Ivermectin* is effective as a microfilaricide when given once a month.

Fleas and ticks require constant attention. Many different products are available. Always read labels carefully and use insecticides at recommended intervals. The house, kennel and yard must be treated (in addition to the animal itself).

"Hot Spots" may appear overnight. They may be caused by insect bites or other irritations. Do not neglect grooming and any moist, red spot requires prompt attention. Your veterinarian may recommend a preparation to use at the first sign of trouble. Delayed treatment may result in a serious skin problem.

Closed cars become death traps in minutes when the weather is hot. Heat stroke requires immediate treatment. Hosing down with water helps but intravenous fluids should be given as soon as possible.

When to Neuter?

There are so many answers to this question it seems best to be vague about any recommendation. Six months of age is frequently mentioned as "ideal."

A new theory is that it might be better to neuter pets when they are eight weeks old. This can be done safely and has become a policy at some animal shelters. Millions of homeless pets are euthanized each year.

Most puppies and kittens are adopted when they are about eight weeks old. If they are altered before they go home with their new owners, the number of unwanted animals they might produce could be greatly reduced. One controlled study has shown that there are minimal differences in the mature animal whether neutered at eight weeks or at six months.

There are many purebred dogs and cats which, in most cases, are neutered for other reasons. Responsible owners plan breedings and mate only those animals which will improve the breed. They give great importance to eliminating faults and inherited problems. Animals are neutered when they do not fit into breeding programs. There is no rule about the age for neutering in these animals. Often it is based on the veterinarian's advice.

The American Kennel Club is considering limited registration. This would mean that the registration shows that this animal is purebred but cannot be used for breeding or shown at championship shows.

Canaan Dog

On June 1, 1989, the Canaan dog became eligible for entry in the Miscellaneous Class at American Kennel Club championship shows and matches.

This breed is believed to have originated in the "land of Canaan" in pre-biblical times. Drawings found on tombs at Beni-Hassan, dating about 2200-2000 B.C., depict dogs which closely resemble the Canaan dog of today. These dogs were guard and herd dogs for the ancient Israelites. They became semi-wild and survived in the Negev Desert, living with the Bedouin and the Druze. In 1934, Drs. Rudolphina and Rudolph Menzel, noted dog trainers for German military and police organizations, escaped to Palestine and began a redomestication program for the wild-living pariah dogs. The dogs could withstand the rigors of the desert under working conditions. As a breed, the Canaan dogs proved highly intelligent and easily trainable. They served as sentry dogs, messengers, Red Cross helpers and even as land mine locators. The Canaan dog was first recognized by the Palestine Kennel Club, and by 1948 there were 150 dogs registered in their stud book.

The Canaan dog was first brought to the United States in 1965 when the late Mrs. Ursula Berkowitz of Oxnard, California, imported four Canaan dogs. The Canaan Club of America was founded and a substantial number of dogs are registered in their stud book. In the breed standard, adopted in 1988, the Canaan dog is described as "aloof with strangers, inquisitive, loyal and loving with his family...dogs are 20 to 24 inches in height and bitches 19 to 23 inches...disqualification: dogs over 25 inches or bitches less than 18 inches...color: predominantly white with marking(s) of color, or solid-colored with or without white trim...Temperament: alert, vigilant, devoted and docile with family, reserved and aloof with strangers. Highly territorial, serving as a responsive companion and natural guardian. Very vocal, persistent. Easily trained. Faults: shyness or dominance towards people."

The Miscellaneous Class at A.K.C. shows includes Australian Kelpies, Border collies, Canaan dogs, Cavalier King Charles spaniels, Chinese cresteds, Chinese Shar-Peis, greater Swiss mountain dogs, miniature bull terriers, Spinoni Italiani and, after July 1, 1989, petit basset griffon Vendeen. These breeds cannot, until fully recognized, be registered by the American Kennel Club. To compete at A.K.C. Shows, the owner must obtain an Indefinite Listing Privilege (ILP) and the number must be shown on the entry form.

Canaan dogs are registered with the Canaan Club of America, Inc. Further information may be obtained from the secretary: Lorraine Stephens, P.O. Box 555, Newcastle, OK 73065.

Rosettes & Ribbons

Dr. Paul C. Gambardella (V'72) has been named chief-of-staff at Angell Memorial Animal Hospital, Boston. In his new role Dr. Gambardella will oversee the many veterinary specialties at Angell.

Dr. Mark E. Haskins (V'69), associate professor of pathology, was one of the winners of the Ralston Purina Small Animal Research Award for his work on lysosomal storage diseases in the dog and the cat. The award was presented in June in St. Louis, MO.

Dr. Gerhard Schad, professor of parasitology, was an invited lecturer at the Ninth International Conference on Comparative Physiology, held in Crans-Sur-Sierre, Switzerland in April. His topic was "Developmental Adaptations to Parasitism" in a conference entitled "Parasitism: Coexistence or Conflict."

Dr. Urs Giger, assistant professor of medicine and medical genetics, received a Transfusion Medicine Academic Award from the Division of Blood Diseases and Resources of the National Heart, Lung, and Blood Institute, National Institutes of Health. This award will enable Dr. Giger to develop an effective multidisciplinary curriculum in comparative hematology, provide a state-of-the-art blood center for animals, and increase transfusion medicine-related research at the School. Dr. Giger also received a grant from the Robert H. Winn Foundation for Cat Research to study the genetics of feline blood groups in the United States. Dr. Giger's work with feline blood groups is also supported by the Garden State Cat Club, the West Chester Cat Club, the Sacred Cat of Burma Fanciers, and the Potomac Area Cat Enthusiasts. Dr. Giger received support from the American Muscular Dystrophy Association for the development of treatments of a muscle disease in English springer spaniels, an inherited metabolic disorder that also occurs in humans.

The Robert H. Winn Foundation also made a grant to **Dr. Colin Harvey,** professor of surgery, to study chronic gingivitis-stomatitis in the cat. Harvey was elected treasurer of the Academy of Veterinary Dentistry, a world-wide organization.

Dr. Donald F. Patterson, Charlotte Newton Sheppard Professor of Medicine, was selected to receive a National Heart, Lung, and Blood Institute Merit Award. The award provides extended grant support to investigators whose research competence, productivity, and scientific contributions are distinctly superior and who are likely to continue in an outstanding manner.

Dr. R. Wayne Randolph (V'74) was honored for "Outstanding Service to Veterinary Medicine" by the New Jersey Veterinary Medical Association at the annual meeting in Atlantic City. The youngest veterinarian ever to receive this award, Dr. Randolph was recognized for his long-standing commitment to excellence in veterinary medical continuing education at the state, and national levels.

His Very Silence Speaks, a book by **Dr. Elizabeth A. Lawrence (V'56),** has been published by Wayne State University Press. The work is about Comanche, a cavalry horse and the sole survivor of Custer's Last Stand.

Dr. Jay P. Farrell, associate professor of parasitology, was awarded the Holbrook Memorial Lectureship of the Medical University of South Carolina. This prestigious lectureship honors the late Dr. Thomas Holbook, a distinguished immunoparasitologist. Dr. Farrell's lecture "T-Cell subsets and Immunity to Cutaneous Leishmaniasis" was presented in April.

Dr. Rebecca Craik, adjunct assistant professor of anatomy, received the Christian and Mary Lindback Award for Distinguished Teaching at Beaver College where she is an associate professor of physiology.

Dr. Gary Smith, assistant professor of population biology and epidemiology, will take part in two symposia on the "Economic Effects of Bovine Parasitism" in Argentina and Brazil. His participation will be sponsored by MSD Ag Vet.

Dr. Robert Whitlock, Marilyn Simpson Professor in Equine Medicine, **Dr. Raymond Sweeney (V'82),** assistant professor of medicine, and **Dr. Max A. Van Buskirk (V'56),** director of the Bureau of Animal Industry, participated in a seminar on Johne's Disease in March.

Dr. Stephen J. Peoples (V'84) presented a paper on the research results of using tricalcium phosphate ceramic as a synthetic bone graft material and served as chairman of the Synthetic Bone Materials session at the International Symposium on Allografts held in March at the University of Leuven, Belgium. Also during that trip, Dr. Peoples visited several Scandinavian orthopedic research centers and gave talks in Switzerland on bone-prosthesis interface strategies. Dr. Peoples is currently the director of the Department of Clinical Research at DePuy Orthopaedics, a division of Boehringer Mannheim Corporation, and he is responsible for animal and human medical research investigations of new materials, implants, and techniques for orthopaedic surgery.

Dean Edwin J. Andrews (V'67) will be the keynote speaker at the 77th Annual Veterinary Conference, held in September at the School of Veterinary Medicine, Purdue University. His topic will be "The Veterinarian's Role in Animal Genetic Engineering."

Dr. William Chalupa, professor of nutrition, will also participate in the conference. He will speak on "Bovine Somatotropins - General Overview and Nutritional Considerations."

The United States Trotting Association, through the Grayson Foundation, has awarded a grant to **Dr. Robert Kenney,** professor of animal reproduction, to study the causes of sub-fertility in stallions.

Dr. William Medway, Professor Emeritus, attended the 29th Meeting of the Marine Mammal Commission and the 23rd Meeting of the Committee of Scientific Advisors on Marine Mammals in February in Monterey, CA.

Dr. Meryl P. Littman (V'75), assistant professor of medicine, **Dr. Robert Washabau (V'82),** lecturer in medicine, and **Ms. Kathleen Dunn,** social worker at VHUP, participated in the Pennsylvania Federation of Dog Clubs' Spring Symposium.

Dr. Adelaide Delluva, professor of biochemistry, was honored by the University's Association of Women Faculty and Administrators for her teaching, mentoring, and service. Dr. Delluva received the Leonore Rowe Williams Award for outstanding service as longtime associate dean of students at the School, chair of the Faculty Grievance Commission, president of WEOUP and contributor to numerous all-University committees and task forces including those developing policies on affirmative action and sexual and racial harassment.

Dr. E. Neil Moore, professor of physiology, presented two invited lectures on "Electrophysiological Basis of Ventricular Tachyarrhythmias" and "Electrophysiological Effects of Cardiac Catheter Ablation" at a symposium in Puerto Rico in April to commemorate the opening of the Caribbean Cardiovascular Institute of Cardiology in San Juan. Dr. Moore presented an invited paper on "Electrophysiological Studies on Chemical Homogeneous Ablation" at the International Symposium on Cardiac Arrhythmias held in Utrecht, The Netherlands to honor Professor Mauricio Rosenbaum. In May Dr. Moore presented an invited lecture at the North American Pacing and Electrophysiology Society Annual Meeting in Toronto, on "Contributions of Basic Electrophysiology to Clinical Cardiology." He chaired the session on "Reentrant Excitations as a Cause of Heart Arrhythmias" at the Eighth Congress of the International Society for Heart Research, held in Ann Arbor, MI in May. Dr. Moore was reappointed visiting professor of medicine in the section of cardiology, department of medicine, Johns Hopkins University Medical School. He also was awarded at $165,000 grant by the W.W. Smith Charitable Trust as continued funding of his cardiac electrophysiological studies on sudden cardiac death.

Dr. Colin Johnstone, associate professor of parasitology in epidemiology and health economics, was appointed to Chester County's Open Space and Environmental Task Force.

Dr. John F. Purdy (V'83) has been named the new director of the Regional Poultry Diagnostic Laboratory at Delaware Valley College, Doylestown, PA.

Dr. Robert E. Davies, Benjamin Franklin Professor of Molecular Biology and University Professor, has been elected chair of the faculty senate.

Dr. David Freeman, assistant professor of surgery, and **Dr. John Madison (V'81),** lecturer in large animal surgery, passed the certifying exam of the American College of Veterinary Surgery and are now board certified in veterinary surgery.

Dr. James Eagelman (V'37) was honored by the PVMA at the annual meeting in October with the Distinguished Veterinarian Award for 50 years of dedicated service to his chosen profession. Dr. Stuart Ames Fox (V'53) received the PVMA's Award of Merit.

Dr. Gail K. Smith (V'74), associate professor of orthopedic surgery, presented the research on the new diagnostic method to identify dogs with canine hip dysplasia at a special meeting in Sweden in March. Dr. Smith also presented his findings at the AHAA meeting in May.

Dr. Patricia L. Sertich (V'83), lecturer in reproduction, presented a paper entitled "Histological aspects of uterine involution in ovariectomized embryo recipient mares" at the Second International Symposium on Equine Embryo Transfer in Banff, Alberta, Canada.

Dr. H. Michael Maetz (V'66) has been named associate dean for student and academic affairs at the University of Alabama at Birmingham School of Public Health. Dr. Maetz, who has been on the faculty of the school since 1977, previously served as chairman of the department of epidemiology.

The Pet Industry Joint Advisory Council has awarded a $50,000 grant to **Dr. Alan M. Beck,** adjunct associate professor of animal ecology for two research projects, "Pets in a Single Parent Home" and "Classroom Visitation." The second project is the development and evaluation of elementary school curriculum materials that would encourage more responsible animal ownership. The project is a joint one, with Dr. Harry Sokoloff of the Graduate School of Education here at the University.

Michele A. Saluta is the recipient of a scholarship awarded by the IAMS Company. She is shown here with Dr. Thomas Mayberry of IAMS and Dean Andrews.

Student Government Awards for Teaching Excellence

The ballroom at the Hotel DuPont in Wilmington provided a festive setting for the Second Annual Student Government Teaching Awards Dinner. A capacity crowd of students, faculty, staff and alumni attended, 360 in all. Short speeches were made, awards were presented, and a great time was had by all.

The program was underwritten in part by the following donors: The UpJohn Company; Baxter Alternate Care Division; Schering Animal Health; American Animal Hospital Association; E.M. Diagnostic Systems, Inc.; Hills Pet Products; Pennsylvania Veterinary Medical Association; University of Pennsylvania School of Veterinary Medicine Alumni Society; Dr. and Mrs. Edwin J. Andrews; General Econopak, Inc.; Peterson Imaging, Inc.

The Norden Faculty Teaching Award was presented to **Dr. Charles D. Newton**, professor of orthopedic surgery. **Dr. Ken Sadanaga (V'85)**, a resident in surgery, received the IAMS Company Resident Award. The William B. Boucher Award for Outstanding Teaching at New Bolton Center by a House Officer was presented to **Dr. Patricia Blakeslee (V'88)**, an intern in field service. **Dr. M. Beth Callan (V'88)**, an intern at VHUP, received the Dr. and Mrs. Jules Silver Intern Bedside Manner Award. **Dr. David Nonamaker (V'68)**, Jacques Jenny Professor of Orthopedic Surgery, received the Beecham Research Award. **Dr. Deborah M. Gillette**, assistant professor of pathology, received the Christian and Mary Lindback Award for Distinguished Teaching.

Each year the classes present The Veterinary Student Government Teaching Awards. The senior class presents awards to four faculty and staff members. The recipients of the Class of 1989 Teaching Awards were **Dr. Deanna Purvis (V'88)**, an intern at VHUP; **Dr. Ken Humber**, lecturer in medicine at New Bolton Center; **Dr. Kim Olsen**, resident at VHUP; and **Mary Yampagila**, a technician at New Bolton Center.

Dr. Peter Dodson, associate professor of anatomy, received the Class of 1992 Award. The Class of 1991 presented its Award to **Dr. Steven Floharty**, assistant professor of pharmacology. **Dr. Charles F. Reid**, professor of radiology, received the Class of 1990 Award.

Gail L. Janson (V'89), the recipient of the Westminster Kennel Foundation scholarship, received a plaque acknowledging the award from Mrs. Robert E. Lindsay during the Westminster Kennel Club dog show.

Dr. Deanna Purvis receives her award from David C. Sweet (V'89).

Dr. Humber is presented the award.

Dr. Kim Olsen.

Dr. Steven Floharty.

Mary Yampagila receives her award.

Dr. Charles Reid receives the award from James C. Camilliere (V'90).

Dr. Peter Dodson accepts the award from Howard N. Krum (V'92).

Scholarships

Amy L. Grice is the recipient of the Amlan Foundation Scholarship. The committee also was impressed by the application of **Susan Holcombe** and made an award to her too. The New Jersey Veterinary Education Foundation has made a contribution of **$1,000 to the Richard Dorr Memorial Scholarship Fund.**

The Lancaster Kennel Club has awarded five scholarships to the following students: **Donna Marina Dunbach, Mary E. Kirk, Michael R. Moyer, Amy Wenger and Kim M. Zorbaugh. Steven Milden** is the recipient of a scholarship provided by the Burlington County Kennel Club. He also received a scholarship from the Plainfield Kennel Club. A second scholarship by the Plainfield Kennel Club was awarded to **Lawrence Rebbecchi. Laurie M. Gianella (V'89)** and **Carolyn E. Lloyd (V'89)** were the recipients of the Samuel Scheidy Memorial Scholarships made available by the Pennsylvania Veterinary Foundation.

Kathy Mockler (V'90), president of the Veterinary Medical Student Government, presents the Norden Award to Dr. Charles Newton.

Dr. Catlan accepts the Silver Award from Dr. Darryl Biery.

Dr. Blakeslee accepts the Boucher Award from Dr. Boucher.

Dr. David Mayberry, IAMS Company, presents the IAMS Award to Dr. Sadanaga.

Dean Andrews congratulates Dr. Deborah Gillette.

Vet Pet Program at Ronald McDonald House

Just two blocks from the School is a very special place, the Ronald McDonald House at 3925 Chestnut Street. This "house that love built" is a home away from home for the many families with children with life-threatening illnesses who come to Philadelphia's Children Hospital for in- or outpatient treatment. The concept of providing a home-like atmosphere for the families and youngsters during treatment sessions began with the Philadelphia house. Now there are 120 such houses nationwide, a number in Canada, Australia and Europe.

Staffed by volunteers, the Philadelphia house can accommodate up to 19 families. About two-and-a-half years ago Nicole Pirkey (Class of 1990) approached the house with the idea of having students and their pets visit the children and their families at the house. At first the house manager allowed only dogs, but by the third visit she told the students they could bring "any animal that fit through the front door."

"The 'Vet Pet Program,' as it is affectionately known by the Ronald McDonald staff, is an informal educational experience," said Nicole Pirkey.

"We bring animals of all types who we determine to be calm enough and friendly enough to visit. These range from all kinds of exotic pets (snakes, guinea pigs, pet rats, birds) to dogs with special talents or ones that are especially large, small, cute, etc. All animals are screened carefully and require a recent negative stool specimen, current vaccination status, and a flea bath the day of the visit. We must be very careful because the immune status of many of these children is compromised. Subsequently, we do not bring cats or kittens (for fear of toxoplasmosis exposure) or any species of exotics that are known to harbor *sub-clinical* diseases that are potential zoonoses."

The student volunteers try to make the children and parents laugh, teach them something about animals and encourage them to touch, hold and play with different types of animals. This requires the student to observe the child and animal at all times to make sure there is no poking of eyes, pulling of tails, etc. The youngsters learn about the animals present, sing

songs and find out about veterinarians and what they do. "It's incredibly rewarding for everyone (students and children) but at times it can be unexpectedly sad," explained Ms. Pirkey. "One little girl, happily playing with a puppy, was telling me about her younger brother who was in the hospital now for the fifth time very ill with leukemia. She mentioned that she wished her little brother could be with her because he loved puppies so. She then suddenly became very serious and asked, 'Are there puppies in heaven?' This was after we had a talk about veterinarians and I remember thinking that maybe she considered me to be the expert figure on the subject. So I replied, 'Yes, I really think there are.' That memory will stay with me for a long time."

The Ronald McDonald House staff is enthusiastic about the 'Vet Pet Program.' "It's always a great night," said Linda Ogilvie, house manager. "The majority of families come from small towns where pets are part of life. Having the animals and students visit provides a home-like comfort. I remember one little girl who cuddled a puppy all evening. She was scheduled for a procedure the next morning and the warm, soft pup gave her comfort."

"I think it is so very important for veterinarians and veterinary students to be aware of how much joy a puppy brings a child or how fascinating it is to touch a snake for the first time and feel how cool and smooth its skin is," said Nicole Pirkey.

Ms. Pirkey will graduate next year but she is confident that the 'Vet Pet Program' is well established and will be one of the student outreach projects for many years to come.

The UpJohn Company presented a check in the amount of $1,000 to the School's Student Chapter of the American Veterinary Medical Association. From left to right, standing: Chris Cochran, Dr. Bruce Beachum, UpJohn Company; Dean Andrews; Dr. Gail Smith, SCAVMA faculty advisor; seated: Phil Golley, UpJohn Company, and Leslie Ziemer, SCAVMA president.

SCAVMA Report

The University of Pennsylvania SCAVMA chapter was very busy during the spring semester and looks forward to an even busier fall. Approximately 80 students were able to attend the SCAVMA symposium in March at the University of North Carolina Veterinary School. Although we didn't capture any titles in the Bovine Palpation Contest, the Equine Aging Contest, or the volleyball marathon, everyone had a great time attending wet labs, a variety of lectures and of course, some fun parties! SCAVMA fundraising activities raised most of the cost for the trip, reducing the student expenses to about $10 each for the four day weekend.

Although our fundraising activities have come to a close this year, it was a very successful year indeed. At the December Auction, SCAVMA raised $10,000 to contribute to the Faculty-SCAVMA Emergency Loan Fund. A $2,000 donation from this Fund made possible reduced student tickets for the Teaching Awards Dinner Dance. Through the Penn Conference Raffle, T-Shirts, and hoagie sales we raised about $9,000 total which, in addition to paying for the Symposium, allowed us to send our 2 delegates to the AVMA convention in Orlando, Florida for 4 days.

Finally, SCAVMA will be co-sponsoring the traditional "Pink Flamingo" end of the year party with student government and Alpha Psi.

Plans for the fall include welcoming activities for the first year students, a Zoo Symposium day for all students and faculty on October 21, 1989, SCAVMA sponsored CPR courses, and new T-Shirt designs!! We will also be expanding our hoagie fundraising sales to include sandwiches, and prepaid hoagie deliveries for faculty and busy hospital staff. In addition, we are considering printing buttons or keychains to expand our T-Shirt sales. If you have a good slogan idea, don't hesitate to let SCAVMA know!

The following were elected as SCAVMA officers for 1989-90 school year:

President	Leslie Ziemer
Vice-Presidents	John McCauley
	Scott Perkins
Secretary	Patty Hogan
Treasurer	Dina Rovere
Hoagies	John McCauley
T-Shirts	Scott Perkins
	Maureen Hargaden
	Lillian Aronson

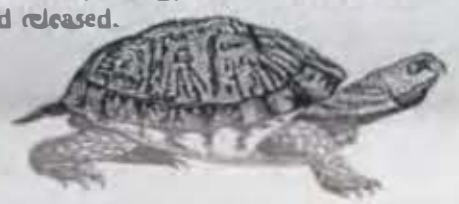
Wildlife Service Update

The student-run Wildlife Service at the Veterinary Hospital of the University of Pennsylvania saw 391 animals during 1988. The release/rehabilitation rate increased from 42% in 1987 to 53% in 1988. Voluntary services and consultations from many of the clinical departments helped the students in the diagnosis and treatment of the animals. Orthopedics, Neurology, Radiology, Surgery, Anesthesia, and Emergency Service Departments (faculty, staff, residents and interns) all assisted. The Schuylkill Valley Rehabilitation Center and Tri-State Bird Rescue and Research Center cooperated in the long term rehabilitation efforts.

In 1989, there are 21 second year and 34 first year veterinary student volunteers in the Wildlife Service. Everyone has been putting in a valiant effort to help provide this important public service while maintaining their educational pursuits. A series of seminars and special lectures is scheduled this year to enhance the education in veterinary medicine, as well as in some basic information on wildlife in the state. Anyone interested in obtaining a schedule should contact the Wildlife Service at the University of Pennsylvania School of Veterinary Medicine.

Among some of the more interesting success stories for 1988:

- A box turtle, with 1/3 of its shell missing after being chewed on by a dog, was treated, its shell repaired and released.



- A Canada goose with a fractured femur had a half K-E placed, and recovered and was released.
- A yellow shafted flicker with a severed foot was cared for and eventually was able to manage to balance with the stump well enough to be released at a wildlife refuge.
- A Peregrine Falcon with head trauma and a fractured femur had an IM pin placed, recovered and is currently at Tri-State for further rehabilitation.
- A box turtle which was being abused by some children was brought in with a necrotic hindfoot. It was healed and then released at a wildlife preserve.
- Several orphaned kestrels were successfully raised for release back to the wild - some were released at Tinicum National Wildlife Refuge.
- An opossum which was hit by a car, losing one eye and suffering from a badly fractured mandible, was successfully released after surgical treatment and patient care.
- A female Mallard duck and a Canada goose, both suffering from open humeral fractures (from gunshot wounds) required surgery. They recovered and were released.

- A sad, but interesting case was an adult osprey brought in with an open humeral fracture, again with signs of gunshot wounds. It unfortunately died just prior to surgery. The body was donated to the Carnegie Foundation in Pittsburgh for the preparation of a museum display specimen.

The 1989 Penn Annual Conference

Many, many thanks to the 700 veterinarians, 84 exhibitors, 42 speakers and Penn's students, faculty and staff for making the 89th Penn Annual Conference an outstanding success. The Conference offers an opportunity for education, as well as lively camaraderie.

Members of the Veterinary Benjamin Franklin Society meet with Dean Andrews for the annual luncheon which honors alumni contributing gifts at the leadership level. Shown here from left to right are Dr. Max Herman, incoming Alumni Society President, Dr. Mike Rainer, incoming Vice President, and Dr. and Mrs. Owen Fox.

A complimentary luncheon, hosted by the Alumni Society, welcomes those alumni graduating within the past four years. This year, 160 recent graduates attended the Conference.

Members of the Executive Board of the Veterinary Medical Alumni Societies meet at the Conference. Here Dr. Wilbur Amand discusses the relationship between the Philadelphia Zoo and our school. Dr. Robert Shomer spoke to the Board about the need for an Impaired Veterinarian's Program in the State of Pennsylvania.

Our exhibitors play a key role in subsidizing the cost of the Conference. Participants at the Conference kept our exhibitors busy during both days of the Meeting.

Be sure to mark your calendars for the 1990 Penn Annual Conference to be held on Wednesday, January 24 and Thursday, January 25, at the Adam's Mark Hotel.

We wish to thank the following exhibitors for their contributions:

Bertholon-Rowland Agencies

A.J. Buck & Son, Inc.

Hills Pet Products

Peterson Imaging, Inc.

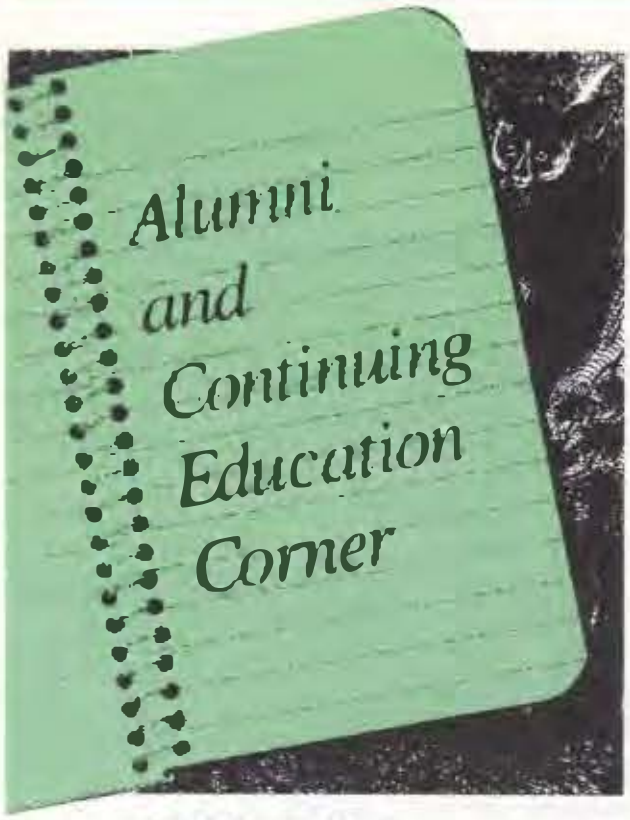
Dermatologics for Veterinary Medicine, Inc.

WELCOME

The new residents and interns at VHUP began their duties on July 1. The new interns are: Dr. Kelly Blackwood (Purdue University); Dr. Daniel M. Brehm (V'89); Dr. Cynthia Easton (University of California, Davis); Dr. Victor S. Katz (Ohio State University); Dr. Jay H. Margolis (University of Tennessee); Dr. Elizabeth Murtrie (V'88); Dr. Michael A. Park (University of Glasgow); Dr. Arnold N. Plotnick (University of Florida); Dr. Catherine A. Popovitch (Ontario Veterinary College); Dr. David C. Sweet (V'89).

The new VHUP residents are: Dr. Andrew W. Beardow, cardiology; Dr. Maribeth J. Bossbaly (V'88), emergency medicine; Dr. Mary Beth Callan (V'88), small animal medicine; Dr. Carla Chieffo (V'86), medical genetics; Dr. Susan N. Fitzmaurice, neurology; Dr. Roger M. Fred, III, medical oncology; Dr. Marjan H. Th. Govers, orthopedic surgery; Dr. Carlos M. Mongil, soft tissue surgery; Dr. Karen A. Kuhl, dermatology; Dr. Sandra Z. Perkowski, anesthesia, also at New Bolton.

There is no longer an internship program at New Bolton Center. The new residents here are: Dr. Carolyn Charlton (V'88), Dr. Jeffrey Rubin, medicine; Dr. Dirk Riemersma, Dr. William Hay, surgery; Dr. Patricia Blakeslee (V'88), field service.



Annual Meeting of the Veterinary Medical Alumni Society

The Annual Meeting of the Veterinary Medical Alumni Society was held on Saturday, May 20 at New Bolton Center.

The incoming president, Max J. Herman, V'59, made the following remarks:

"The Veterinary Medical Alumni Society was organized in June of 1887, the day the first class graduated from the Veterinary Department of the University of Pennsylvania.

I am very pleased to be part of such a long standing orgunization, and I would like to tell you how I see the future unfolding. I see it as a kind of relay race - receiving information from the past, holding and building for the present, and then passing it on to the future. This spring on 'Wide World of Sports,' I watched a marathon relay race from New York City. This was a different kind of relay race called the Ekiden. A young runner named Marcus O'Sullivan was a member of the winning Irish relay team. Incidently, Marcus O'Sullivan, who is an olympic runner and ran for Villanova University, has some interesting ties to the Veterinary School.

His brother-in-law, Ted Spinks, graduated in 1981, and his sister-in-law, Pat Spinks Farrell, and her husband, Bernie, graduated in 1976.

One of the unique features of this Japanese style race is the sash, called the Tasuki, that the members pass on to each other in lieu of a baton.

I feel that Jay is passing that Tasuki on to me, and I accept it hoping that I will hold it securely, and when the time is right, pass it on. But before that happens, we hope to accomplish several things:

1. Members of the Executive Board plan to expand the in-house newsletter to reach all alumni. This will enable us to convey up-to-date activities and information from the School and the alumni.
2. We plan to form an ad hoc committee of recent graduates to increase communication with our new graduates.
3. We scheduled a meeting for June 14th to revamp the duties of the class agents. Committed class agents are the key to a successful alumni program.
4. The alumni received a letter asking for their assistance in the School's recruitment efforts.
5. We plan to have alumni play an active part in freshman orientation.
6. And, we hope to increase Benjamin Franklin enrollment through personal telephone calls.

In all of these areas, our major goal is to encourage rapport between alumni and the School.

M.J. Herman, V'59 (L), accepting the President's gavel from Jay J. Simmons, V'56.

Dr. David Sweet, President, Class of 1989 presents Dr. Herman, with the flag.

So Jay, I accept the sash in our little version of the Ekiden, which by the way means 'messenger between points.' We will run this race to the best of our ability, incorporating past experience, present coaching and support, and a bright future for veterinary medicine at Penn."

Dr. Herman introduced the members of the 1989-1990 Executive Board of the Veterinary Medical Alumni Society.

Vice President; Vice Chairman, Liaison Committee	Michael P. Ratner, V'59 Fairfield, CT Mixed Animal Practice
Secretary/Treasurer	M. Josephine Deubler, V'38 Philadelphia, PA
Alumni Annual Giving Chairman and Phonathon Co-Chairman	Jarvis J. Badgley, V'59 Oldwick, NJ Small Animal Practice
Faculty Member	Darryl N. Biery, OSU'64 Chairman – Clinical Studies Philadelphia
Benjamin Franklin Society Chairman & Phonathon Co-Chairman	Daniel D. Bleicher, V'53 Abington, PA Laboratory Animal Medicine
Member at Large	Malcolm Borthwick, Jr., V'69 New Hope, PA Equine Practice
Member at Large	Jack Bregman, V'66 Brooklyn, NY Small Animal Practice
Alumnae Association & General Alumni Board	Hartiet A. Doolittle, V'61 Runnemede, NJ Animal Technician Educator
Reunion Chairman & Phonathon Co-Chairman	Sheldon Gerstenfeld, V'68 Philadelphia, PA Small Animal Practice
Liaison - NBC	George L. Hartenstein, IV, V'68 York, PA Mixed Practice, predom. Large Animal
Awards Committee	Howard Hughes, Jr., V'67 King of Prussia, PA Laboratory Animal Medicine
1990 P.V.M.A. President	Charles W. Koenig, V'57 Limerick, PA Mixed Practice, predom. Small Animal
Faculty Member	Richard A. McFeely, V'61 Acting Chairman, Clinical Studies New Bolton Center
Liaison - VHUP	Donald R. Shields, V'63 Huntingdon Valley, PA Small Animal Practice
Past President	Jay J. Simmons, V'56 Audubon, NJ Small Animal Practice
Long Range Planning	Joseph D. Slick, V'53 Perkasie, PA Mixed Practice, predom. Small Animal
Continuing Education	Joseph Tait, V'68 New York, NY Small Animal Practice
Member at Large	Robert J. Tashjian, V'56 West Boylston, MA Mixed Practice
1989 P.V.M.A.	Patricia L. Thomson, COR'60 Lancaster, PA Small Animal Practice
Member at Large	Alexander Wetherill, V'80 Hopewell, NJ Small Animal Practice

Harcum Junior College to Offer its AVMA Accredited AHT Program in the Evening

Harcum Junior College's Animal Health Technician Program will be offered in the evening starting in September, 1989. This will allow students who are not able to go to school during the day to become eligible to sit for the Pennsylvania state certification exam. Harcum is doing this to better meet the needs of the veterinary community for graduate technicians and, hopefully, to increase the program's enrollment.

A maximum of 28 credits of general education courses will be accepted for transfer by the program. AHT specific courses will be offered two or three evenings a week on a trimester basis. A student who transfers the maximum number of credits could complete the evening program in 2-1/2 years.

The practicum experience in association with the University of Pennsylvania School of Vetetinary Medicine is the main feature that sets Harcum's AHT program apart from most others. Evening students will be required to complete these practicums during the day. Veterinarians in private practice have assured us that they would survive without their technicians for the six months they were on practicum if they knew that when the student returned she/he would be eligible to sit for the state certification exam.

For more information comact: Nadine Hackman, VMD, Director Animal Health Technician Program, Harcum Junior College, Bryn Mawr, PA 19010, (215) 526-6055.

Continuing Education Courses

We are pleased to present the 1989-19 Professional Continuing Education Program for graduate veterinarians. A brochure with application form has been sent to all alumni. Should you wish additional copies or information, please call the Alumni Office at 215-898-4234.

Program	Date	Location	Cost
Equine Lameness	9/6/89 9/7/89	New Bolton Center	$150.00 per day $250.00 both
Feline Genitourinary Surgery	10/25/89	VHUP	$275.00
Feline Oral Disease and Dentistry	10/26/89	VHUP	$275.00
Surgical Approaches to the Bones and Joints of Dogs Laboratory	2/28/90	VHUP	$275.00
Small Animal Infectious Disease Update	3/7/90	VHUP	$100.00
A Special Presentation for Western Pennsylvania Practitioners: Internal Medicine	3/14/90	Meadville, PA	$ 50.00 $ 75.00*
Reconstructive Stifle Surgery Laboratory	5/16/90	VHUP	$275.00
Small Animal Non-Plating Orthopaedics Laboratory	5/23/90	HUP	$275.00
Surgical Treatment of Otitis Externa and Media	5/17/90	VHUP	$275.00
Small Animal Skeletal Radiology	6/6/90	VHUP	$150.00
Dermatology	6/13/90	VHUP	$100.00

*Non-members of NPWMA

Harcum Junior College

Animal Health Technician Program

Continuing Education Wet Labs

Urinalysis Review — October 21, 1989
Meryl Littman, VMD
University of Pennsylvania

Computer in Your Practice — November 4, 1989
Vincent Morelli, BS
Harcum Junior College

Beginning Hematology — November 11, 1989
Heather E.S. Toland, CAHT
Harcum Junior College

Intermediate Hematology — November 18, 1989
Michael Rosensway, VMD,
University of Pennsylvania

Microbiology Review — December 2, 1989
Donna Maloney, CAHT,
University of Pennsylvania

For more information, call Heather E.S. Toland, (215) 526-6046.

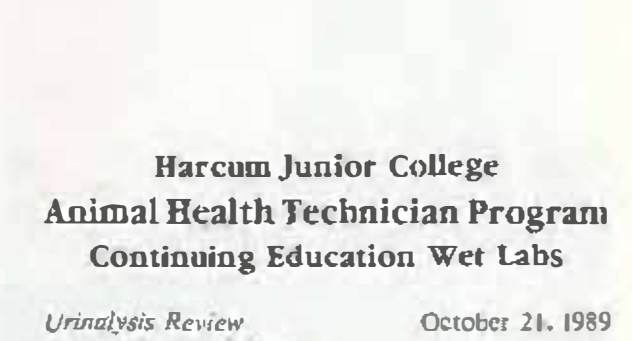
VHUP Formulary

The Veterinary Hospital of the University of Pennsylvania Formulary has been revised and includes drugs used at the Veterinary Hospital of the University of Pennsylvania, suggested dosages, and major contraindications for small animals including exotics. It is available to practicing veterinarians. The cost is $10.00 to cover postage, handling, and printing costs. The check should be made out to the University of Pennsylvania and sent to the Veterinary Hospital of the University of Pennsylvania Pharmacy at 3850 Spruce Street, Philadelphia, PA, 19104.

Alumni Weekend

Whatever happened to . . . ? In case you're wondering what became of that 'old gang of mine', just take a look at these photographs and see who you recognize. Alumni attending the May 20th Alumni Day Festivities at New Bolton Center spent a beautiful sunny afternoon reminiscing about the good times, followed by an evening of reunion dinners and dancing. Many thanks to all who helped make Alumni Weekend a success.

The Class of 1939 during the afternoon festivities.



Class of 1939

Class of 1944

Class of 1954

Class of 1959

Class of 1964

Class of 1969

Class of 1974

Class of 1979

Class of 1984

1989 Alumni Award of Merit

Each year, this award is presented during Alumni Day to honor distinguished graduates. Among the criteria are:

1. Scientific contributions to the advancement of knowledge in biomedicine.
2. Contributions to the welfare of animals through public education of animal owners.
3. Contributions to Society through civic activities which foster the advancement of the profession and good name of the University.
4. Perception of the individual by peers within the profession and community.

The Executive Board of the Veterinary Medical Alumni Society is soliciting suggestions for nominees for Alumni Day 1990. Nominees are accepted regardless of year of graduation, however, emphasis is placed on alumni graduated during the 1990 reunion years (any year ending with a 0 or 5, e.g., 1940, 1945). Congratulations to the 1989 Alumni Award of Merit Recipients:

Mark E. Haskins, V.M.D., Ph.D.
University of Pennsylvania
School of Veterinary Medicine
Class of 1969

Margaret S. Landi, V.M.D.
Smith Kline & French Laboratories
Class of 1974

Paul F. Landis, V.M.D.
Small Animal Practice/Retired
Class of 1939

John C. Simms, V.M.D.
Mixed Animal Practice
Class of 1974

Dean Andrews, the Students and Faculty thank the members of the Class of 1939 for their extraordinarily generous class gift in honor of their 50th reunion. The class contribution of $20,000 will be used to complete and equip the Neonatal Examination Room in the Connelly Intensive Care Unit/Graham French Neonatal Section.

Dean Andrews, the faculty and staff, and the Alumni Body welcome the members of the Class of 1989 to the Veterinary Medical Alumni Society. All graduates are members of the Society, there are no dues or other requirements for membership in the Alumni Society.

* * * * *

There's a new Veterinary School publication on its way to YOU. Beginning in September, the *PennVetter*, will be sent to all students, faculty and alumni. Designed as an inhouse newsletter, the *PennVetter* will keep you posted on what's going on in our School, including seminars, new clinical information, and alumni events.

The *PennVetter* will be mailed every four months. The first three issues will be complimentary. Your comments and suggestions regarding the *PennVetter* are welcome.

* * * * *

Earlier this year Patrick Favret (V'83) was killed in an auto accident. A trust fund has been established for his children's education. Those wanting to contribute should contact: Favret Education Trust, c/o Richard Abbodanza, 133 Rollins Avenue, Suite 6, Rockville, MD 20852.

Behavior Clinic

Beginning in September the Behavior Clinic at the Veterinary Hospital of the University of Pennsylvania will be expanding its hours. Appointments will be scheduled Wednesday evenings from 4 p.m. through 9 p.m. and Saturdays starting at 8 a.m. The clinic will be managed by Dr. Karen Overall.

Initial consultations for canine behavioral problems are generally 1 1/2 hours in length. Consultations for feline behavioral problems are about 1 hour in length. There is a fee for these office visits.

Dr. Overall is also available for telephone consultations for which a fee will be charged.

Appointments for the Behavior Clinic can be made by calling 898-3347. Because of frequent cancellations, a 50% deposit is required which must be received at the latest seven days prior to the scheduled appointment. If the appointment is not cancelled within seven days prior to its scheduled time, the deposit is forfeited.

The oncology laboratory on the second floor of VHUP was dedicated in honor of one of Dr. K. Ann Jeglum's patients, a golden retriever named Pete, owned by Bruce J. Heim. Shown here are Mr. Bruce J. Heim, Dr. Jeglum, and Dean Andrews.

The 2,200 square foot multi-user laboratory for the department of pathobiology was formally unveiled on June 20. Shown here are Dr. Wilfried T. Weber, professor of pathology, and Dean Edwin J. Andrews with the plaque acknowledging the six donors who funded the executive renovations: 1957 Charity Funds; Mr. Vincent B. Murphy; The Mabel Pew Myrin Trust; Mrs. David Rockefeller; SmithKline Beckman Corp. ratios; and one anonymous donor.

Dr. Herman presenting the awards to the recipients: Dr. Mark E. Haskins, V'69, Dr. Margaret S. Landi, V'74

Dr. Paul F. Landis, V'39 Dr. John C. Simms, V'74

Commencement

Commencement exercises for the 104th graduating class were held on May 22, 1989 at the Zellerbach Theatre. Robert M. Miller, D.V.M., a veterinary cartoonist from California, gave the commencement address.

Dean Edwin J. Andrews then presented the diplomas to 102 members of the Class of 1989 and one member of the Class of 1988.

Class President David C. Sweet gave an address and was presented the Class Flag by Dr. Max J. Herman (V'59).

Dean Andrews, assisted by Dr. Deborah M. Gillette, then presented awards and prizes to a number of graduates and recognized those graduating with honors.

The administration of the Veterinarian's Oath by Dr. Patricia L. Thompson, president of the Pennsylvania Veterinary Medical Association, concluded the ceremony and everyone gathered at a reception for the graduates and their families.

Class of 1989

Deborah Jean Abt
Johanna Suzanne Muir Archer
Encarnacion Arias-Karolewski
Ilene Debbie Arnold
Adam Hillel Arzi
Mary French Bannister
Joanna Montgomery Bassett
Paul Philip Belliveau
Faith Anne Berry
Wendy J. Blumfuss
Gilda Marie Botticelli
Jonathan Scott Bramson
Daniel Mark Brehm
Nancy Eileen Brennan-Gorman
John Peter Broshkevitch
Bonnie Ann Brown ***
Janise Marie Caillet
Hanan Saul Caine
Curtis George Cianci
Lori Mulholland Cobb
Barbara Elizabeth Corson
Philippe R. Coudrai
Rose Ann Cozzi
Diane Teresa Deresienski
Kathryn Hill DeTurck
Kevin Clayton Doherty
Robert Carmen D'Urso
Frederick Daryl Doddy
Jennifer Gaylord Elsom
Scott Leonard Fausel
David John Fine
Bryan Keith Flood
Randi Gail Fonseca
Gerald Blaine Frye ***
Mary Schubert Gang
Paula Marie Genduso
Laurie Maria Giannella ***
Jo Ann Greenberg
Randi Linn Gural
Marianne Theresa Hassey
Cheryl Lynn Haywood
Dorothy Frances Hayes
Jonathan Edward Higgins
Ernest Fifi Hinson
Joan M. Howard
Gail Lynn Inason
Amanda Maria Johnson-Lengner
Karen Lavinia Johnston
Douglas Elliot Jones
Nahmi Lynn Jones
Wendy Keller
Daniel George Kenney
Suzanne Margaret Kent
Mary Ethel Kirk *
Kristine Lynne Krotec **
Gary John Kubala
Ronald Joseph Lane
Herbert Joseph Leary, III **
Carolyn Evelyn Lloyd
Robin Lynn Love
Janet Ellyn Mack
Tracy A. Mann
Sharon K. Mills
Willard Duane Morrow
Linda Karen Mulski
Patricia Ann Murphy
Thomas Michael Nedermeyer *
Regina Marie Orisuglio
Deborah Crane Pearsall
Peter Lawrence Petrinato
Deborah Jeanne Pitt
Elizabeth Anne Myers Procasano
Betty Ann Pyatak-Monaghan
Anne Bogart Quackenbush ***
Carolyn Beth Redding
Donna Lynn Rapp
Laura Kathryn Reilly ***
Irene Teresa Rogers *
Francie Lou Rubin
Michele Ruthe Rosenbaum *
James Matthew Rowe
Michele Ann Saluta
Ellen Jane Kuhnle Scholz *
Dianne Elizabeth Skorup
Barbara Lynn Smith
Valerie Urbanowitz Springer
Ruth Ronder Stafford
David Carroll Sweet **
Jean Bennett Townsend
Gregory Charles Tremoglie
Eric Deane Twitchell
Janice Lynn Veron
Nicholas James Volkman *
Robin Marie Weppelman *
Lauren Elizabeth West
Terri Lynn Whittington
Caroline Marie Wierzorek
Reese Caskey Williamson
Richard Kenneth Winning
Tania Denise Woerner
Shirley San Neo Yeo
David Thomas Zamos

Richard Arthur Dorr, Jr.
(1963-1988)

December 23, 1988
Beverly Anne Giles

*** Summa Cum Laude
** Magna Cum Laude
* Cum Laude

Award Recipients

The Leonard Pearson Prize
David C. Sweet

The J.H. Hippensteel Prize
Gerald B. Frye
Bonnie A. Brown

The 1930 Class Prize in Surgery
Ronald J. Lane

The Auxiliary to the American Veterinary Medical Association Prize
Gary J. Kubala

The Auxiliary to the Pennsylvania Veterinary Medical Association Prize
Lauren E. West

The 1956 Class Medal for Achievement in Pathology
Bonnie A. Brown

The James Hazlitt Jones Prize in Biochemistry
Kristine L. Krotec

The Milstark Prize
Anne B. Quackenbush

American Animal Hospital Association Award
Tracey A. Mann

Merck Awards
Eric D. Twitchell
Nicholas J. Volkman

George M. Palmer Prize
Laura K. Reilly

Ewingham Prize for Cardiology
Scott L. Fausel

E.L. Stubbs Award in Avian Medicine
Ilene D. Arnold

The Large Animal Surgery Prize
Herbert J. Leary, III

The Large Animal Medicine Prize
Mary E. Bannister

The Morris L. Ziskind Prize in Swine Medicine
Barbara E. Corson

The Morris L. Ziskind Prize in Public Health
Deborah J. Abt

Hill Award for Nutrition
Ronald J. Lane
Lauren E. West

The Purina Mills Award in Swine Medicine
Peter L. Petrinato

Upjohn Awards
Gerald B. Frye
Bonnie A. Brown

Auxiliary to the Student Chapter of the American Veterinary Medical Association Prize
Herbert J. Leary, III

Bellwether 26

Bellwether is published by the School of Veterinary Medicine at the University of Pennsylvania.

Editor:
Helma Weeks

Illustrator:
Marie Garofano

Writers:
Dr. M. Josephine Deubler (Animal Crackers)
Janet R. Fallon
Phyllis Holtzman
Helma Weeks

Photographers:
Adam Gordon
Lynne R. Klunder
Anthony Wood

New Bolton Liaison:
Catherine Larmore

We'd like to hear your praise, criticisms or comments. Please address your correspondence to:

Helma Weeks, University of Pennsylvania, School of Veterinary Medicine, 3800 Spruce Street, Philadelphia, PA 19104-6010 (215) 898-1475

None of these articles are to be reproduced in any form without the permission of the editors of Bellwether. *1989 Copyright by the Trustees of the University of Pennsylvania.*

Bellwether

University of Pennsylvania
School of Veterinary Medicine
3800 Spruce Street
Philadelphia, PA 19104-6008

Nonprofit Organization
US Postage
PAID
Philadelphia, PA
Permit No. 2563

Address correction requested